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THE SCIENCE OF PSYCHOLOGY

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LECTURE GUIDE

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A. THE FIELD OF PSYCHOLOGY (p. 4)

Learning Objective 1.1 – What defines psychology as a field of study, and what are psychology's four primary goals?

Psychology is the scientific study of behavior and mental processes.

B. PSYCHOLOGY'S GOALS (p. 4)

The four goals of psychology are description (what is happening?), explanation (why is it happening?), prediction (when will it happen again?), and control (how can it be changed?).

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II. PSYCHOLOGY THEN: THE HISTORY OF PSYCHOLOGY (Text p. 6)

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- [Women in the History of Psychology in America](#)
- [Biographical Profiles](#)
- [Scandal in Psychology—John Watson's Fall from the Throne](#)

Forty Studies that Changed Psychology: Explorations into the History of Psychological Research

- [Watch Out for the Visual Cliff!](#)

Web Resources

- [History of Psychology](#)

Video Clips

- 🎥 [Carl Jung on Alchemy and Symbolism](#)

Multimedia Resources

- 📅 [Interactive Timeline: Explore more important dates in psychology \(in text icon p. 6\)](#)
- 📅 [Biographies: Learn more about key figures in the history of psychology with these audio files](#)
- 📅 [Video Classic footage of John Watson, Rosalie Raynor, and Little Albert \(in text icon p.12\)](#)

A. IN THE BEGINNING: WUNDT, INTROSPECTION, AND THE LABORATORY (p. 6)

Learning Objective 1.2 – How did structuralism and functionalism differ, and who were the important people in those early fields?

In 1879, psychology began as a science of its own in Germany with the establishment of Wundt's psychology laboratory. He developed the technique of objective introspection.

B. TITCHENER AND STRUCTURALISM IN AMERICA (p. 7)

1. Titchener, a student of Wundt, brought psychology in the form of structuralism to America. Structuralism died out in the early twentieth century.
2. Margaret F. Washburn, Titchener's student, was the first woman to receive a Ph.D. in psychology in 1894 and published *The Animal Mind*.

C. WILLIAM JAMES AND FUNCTIONALISM (p. 7)

1. William James proposed a countering point of view called functionalism, that stressed the way the mind allows us to adapt.
2. Many of psychology's early pioneers were minorities such as the African Americans who, despite prejudice and racism, made important contributions to the study of human and animal behavior.
3. Functionalism influenced the modern fields of educational psychology, evolutionary psychology, and industrial/organizational psychology.

D. ISSUES IN PSYCHOLOGY: PSYCHOLOGY'S AFRICAN AMERICAN ROOTS (p. 9)

E. GESTALT PSYCHOLOGY: THE WHOLE IS GREATER THAN THE SUM OF ITS PARTS (p. 10)

Learning Objective 1.3 – What were the basic ideas and who were the important people behind the early approaches known as Gestalt, psychoanalysis, and behaviorism?

1. Wertheimer and others studied sensation and perception, calling the new perspective Gestalt (an organized whole) psychology.
2. **Figure 1.1 – A Gestalt Perception**

F. SIGMUND FREUD'S THEORY OF PSYCHOANALYSIS (p. 10)

Freud proposed that the unconscious mind controls much of our conscious behavior in his theory of psychoanalysis.

G. PAVLOV, WATSON, AND THE DAWN OF BEHAVIORISM (p. 11)

1. Watson proposed a science of behavior called behaviorism, which focused only on the study of observable stimuli and responses.
2. Watson and Rayner demonstrated that a phobia could be learned by conditioning a baby to be afraid of a white rat.
3. Mary Cover Jones, one of Watson's more famous students in behaviorism and child development, later demonstrated that a learned phobia could be counterconditioned.

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III. PSYCHOLOGY NOW: MODERN PERSPECTIVES (Text p. 13)

Lecture Launchers and Discussion Topics

- There Are Other Psychologies in the World
- Some Effects of Culture on the Individual

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- Promoting Cultural Awareness
- Perspectives in Psychology

Web Resources

- Psychological Theories

Learning Objective 1.4 – What are the basic ideas behind the seven modern perspectives, and what were the important contributions of Skinner, Maslow, and Rogers?

A. PSYCHODYNAMIC PERSPECTIVE (p. 13)

Modern Freudians such as Anna Freud, Jung, and Adler changed the emphasis in Freud's original theory into a kind of neo-Freudianism.

B. BEHAVIORAL PERSPECTIVE (p. 14)

Skinner's operant conditioning of voluntary behavior became a major force in the twentieth century. He introduced the concept of reinforcement to behaviorism.

C. HUMANISTIC PERSPECTIVE (p. 14)

Humanism, which focuses on free will and the human potential for growth, was developed by Maslow and Rogers, among others, as a reaction to the deterministic nature of behaviorism and psychoanalysis.

D. COGNITIVE PERSPECTIVE (p. 14)

Cognitive psychology is the study of learning, memory, language, and problem solving, and includes the field of cognitive neuroscience.

E. SOCIOCULTURAL PERSPECTIVE (p. 15)

The sociocultural perspective combines two areas of study: social psychology and cultural psychology.

F. BIOPSYCHOLOGICAL PERSPECTIVE (p. 15)

Biopsychology emerged as the study of the biological bases of behavior, such as hormones, heredity, chemicals in the nervous system, structural defects in the brain, and the effects of physical diseases.

G. EVOLUTIONARY PERSPECTIVE (p. 16)

The principles of evolution and the knowledge we currently have about evolution are used in this perspective to look at the way the mind works and why it works as it does. Behavior is seen as having an adaptive or survival value.

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IV. PSYCHOLOGICAL PROFESSIONALS AND AREAS OF SPECIALIZATION (Text p. 17)

Lecture Launchers and Discussion Topics

- Psychologists and Prescription Privileges
- Careers in Psychology

Classroom Activities, Demonstrations, and Exercises

- Which Famous Psychologist Am I?
- Psychologists' Twenty Questions
- Brainstorming Definitions
- Are Psychologists Scientists?

Web Resources

- [Major Professional Organizations](#)
- [Majoring in Psychology](#)
- [Careers in Psychology](#)

Multimedia Resources

- 📺 [Women in the field of psychology video: Interview with Florence Denmark](#)

Learning Objective 1.5 – How does a psychologist differ from a psychiatrist, and what are the other types of professionals who work in the various areas of psychology?

1. Psychologists have academic degrees and can do counseling, teaching, and research and may specialize in any one of a large number of areas within psychology.
2. **Figure 1.2 – Work Settings and Subfields of Psychology**

A. AREAS OF SPECIALIZATION (p. 18)

1. There are many different areas of specialization in psychology, including clinical, counseling, developmental, social, and personality as areas of work or study.
2. Psychiatrists are medical doctors who provide diagnosis and therapy for persons with mental disorders.
3. Psychiatric social workers are social workers with special training in the influences of the environment on mental illness.

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V. PSYCHOLOGY: THE SCIENTIFIC METHODOLOGY (Text p. 20)

Lecture Launchers and Discussion Topics

- [Case Studies of Vietnam War Experiences](#)
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- [Human Factors Design Research](#)
- [Applied Experimental Psychology in the Real World](#)

Classroom Activities, Demonstrations, and Exercises

- [Can Science Answer This Question?](#)
- [Experimental Design](#)
- [Observational Research in the Dining Hall](#)
- [Naturalistic Observation](#)
- [Psychology in Social Problems](#)
- [Understanding Correlations](#)
- [Correlational and Experimental Research](#)
- [Quiz on Correlation](#)
- [Testing Random Assignment](#)
- [Small Samples](#)
- [Which Method Would You Use?](#)
- [Name That Research Method](#)
- [Using Memory to Demonstrate Methodology](#)

APS: Readings from the Association of Psychological Science

- [Three Reasons Not to Believe in an Autism Epidemic](#)

Web Resources

- [Research Methods and Statistics](#)

Video Clips

- 📺 [Theories and Hypotheses](#)

Multimedia Resources

- 📺 [Case Study: Learn More about Phineas Gage \(in text icon p. 24\)](#)
- 📺 [Explore More with a simulation on why Correlation Does Not Show Causation](#)
- 📺 [Explore More: Simulation on Observational Studies \(in text icon p. 25\)](#)
- 📺 [Simulation on the Scientific Method](#)
- 📺 [Explore More: Simulation distinguishing independent and dependent variables \(in text icon p. 28\)](#)
- 📺 [Video Classic footage of Bandura's Bobo Doll study](#)
- 📺 [Simulation on doing simple statistics](#)
- 📺 [Video Classic footage: Konrad Lorenz \(in text icon p. 30\)](#)

A. WHY PSYCHOLOGISTS USE THE SCIENTIFIC METHOD (p. 20)

Learning Objective 1.6 – Why is psychology considered a science, and what are the steps in using the scientific method?

The scientific method is a way to determine facts and control the possibilities of error and bias when observing behavior. The five steps are perceiving the question, forming a hypothesis, testing the hypothesis, drawing conclusions, and reporting the results.

B. DESCRIPTIVE METHODS (p. 22)

Learning Objective 1.7 – How are naturalistic and laboratory settings used to describe behavior, and what are some of the advantages and disadvantages associated with these settings?

Learning Objective 1.8 – How are case studies and surveys used to describe behavior, and what are some drawbacks to each of these methods?

1. Naturalistic observations involve watching animals or people in their natural environments but have the disadvantage of lack of control.
2. Laboratory observations involve watching animals or people in an artificial but controlled situation, such as a laboratory.
3. Case studies are detailed investigations of one subject, whereas surveys involve asking standardized questions of large groups of people that represent a sample of the population of interest.
4. Information gained from case studies cannot be applied to other cases. People responding to surveys may not always tell the truth or remember information correctly.

C. FINDING RELATIONSHIPS (p. 26)

Learning Objective 1.9 – What is the correlational technique, and what does it tell researchers about relationships?

Learning Objective 1.10 – How are operational definitions, independent and dependent variables, experimental and control groups, and random assignment used in designing an experiment?

Learning Objective 1.11 – How do the placebo and experimenter effects cause problems in an experiment, and how can single-blind and double-blind studies control for these effects?

1. Correlation is a statistical technique that allows researchers to discover and predict relationships between variables of interest.
2. Positive correlations exist when increases in one variable are matched by increases in the other variable, whereas negative correlations exist when increases in one variable are matched by decreases in the other variable.

3. Correlations cannot be used to prove cause-and-effect relationships.
4. **Figure 1.3 – Five Scatterplots**
5. Experiments are tightly controlled manipulations of variables that allow researchers to determine cause-and-effect relationships.
6. The independent variable in an experiment is the variable that is deliberately manipulated by the experimenter to see if related changes occur in the behavior or responses of the participants and is given to the experimental group.
7. The dependent variable in an experiment is the measured behavior or responses of the participants.
8. The control group receives either a placebo treatment or nothing.
9. Random assignment of participants to experimental groups helps to control for individual differences both within and between the groups that might otherwise interfere with the experiment's outcome.
10. Experiments in which the subjects do not know if they are in the experimental or control groups are single-blind studies, whereas experiments in which neither the experimenters nor the subjects know this information are called double-blind studies.

D. ISSUES IN PSYCHOLOGY: STEREOTYPES, ATHLETES, AND COLLEGE TEST PERFORMANCE (p. 32)

Learning Objective 1.12 – What are the basic elements of a real-world experiment?

An experiment studying the effect of negative stereotypes on text performance of athletes (Jameson et al., 2007) found that exposure to negative stereotypes prior to taking a test resulted in poorer performance by athletes than the performance of athletes whose exposure came after the test.

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VI. ETHICS OF PSYCHOLOGICAL RESEARCH (Text p. 33)

Lecture Launchers and Discussion Topics

- Animals in Psychological Research
- A Historical Perspective on Research Ethics

Classroom Activities, Demonstrations, and Exercises

- Give the Doctor Some Advice

Web Resources

- Ethics

Video Clips

- 📺 Human Cloning: The Ethics
- 📺 Animal Rights Terrorists
- 📺 Before Informed Consent: Robert Guthrie
- 📺 Even the Rat was White: Robert Guthrie

Multimedia Resources

- 📺 Simulation on Ethics in Psychological Research
- 📺 Video on Informed Consent Interview with Guthrie
- 📺 Video on the Animal Research Controversy

Learning Objective 1.13 – What are some ethical concerns that can occur when conducting research with people and animals?

A. THE GUIDELINES FOR DOING RESEARCH WITH PEOPLE (p. 33)

1. Ethical guidelines for doing research with human beings include the protection of rights and well-being of participants, informed consent, justification when deception is used, the right of participants to withdraw at any time, protection of participants from physical or psychological harm, confidentiality, and debriefing of participants at the end of the study.
2. Researchers are also responsible for correcting any undesirable consequences that may result from the study.
3. Animals in psychological research make useful models because they are easier to control than humans, they have simpler behavior, and they can be used in ways that are not permissible with humans.

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VII. APPLYING PSYCHOLOGY TO EVERYDAY LIFE: THINKING CRITICALLY ABOUT CRITICAL THINKING (Text p. 36)

Lecture Launchers and Discussion Topics

- Pseudopsychology and the Mozart Effect

Classroom Activities, Demonstrations, and Exercises

- Wonder Horse Dials 911 to Save Boy's Life
- Softens Hands While You Do Dishes
- Critical Thinking
- Introducing Controversies in Introductory Psychology Classes
- Critical Thinking

APS: Readings from the Association of Psychological Science

- Children of the Affluent: Challenges to Well-Being
- Is Optimism Always Best?: Future Outlooks and Preparedness

Video Clips

- 📺 Talking to Heaven
- 📺 Gun Control Makes Us Safer
- 📺 The Secret
- 📺 Magical Thinking: Children
- 📺 Magical Thinking: Adults
- 📺 “Straightening Out” Homosexuals
- 📺 Carlos: A Channeler
- 📺 Cold Reading: Talking to Popular Heaven Medium James Van Praagh

Multimedia Resources

- 📺 Psychology in the News podcast: Controversies around stem cell research (in text icon p. 37)
- 📺 Explore How to Be Critical Thinker
- 📺 Learn more about phrenology (in text icon p. 38)

A. THE CRITERIA FOR CRITICAL THINKING (p. 36)

Learning Objective 1.14 – What are the basic principles of critical thinking, and how can critical thinking be useful in everyday life?

1. Critical thinking is the ability to make reasoned judgments.

2. The four basic criteria of critical thinking are that there are few concepts that do not need to be tested, evidence can vary in quality, claims by experts and authorities do not automatically make something true, and keeping an open mind is important.



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VIII. CHAPTER SUMMARY

Classroom Activities, Demonstrations, and Exercises

- Crossword Puzzle
- Fill-in-the-Blanks

Multimedia Resources

-  Audio file of the chapter (students can listen to the entire chapter) (in text icon p. 215)
-  Test Yourself—practice quizzes (in text icon p. 216)

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FULL CHAPTER RESOURCES

▼ LEARNING OBJECTIVES

- 1.1 What defines psychology as a field of study, and what are psychology's four primary goals?
- 1.2 How did structuralism and functionalism differ, and who were the important people in those early fields?
- 1.3 What were the basic ideas and who were the important people behind the early approaches known as Gestalt, psychoanalysis, and behaviorism?
- 1.4 What are the basic ideas behind the seven modern perspectives, and what were the important contributions of Skinner, Maslow, and Rogers?
- 1.5 How does a psychologist differ from a psychiatrist, and what are the other types of professionals who work in the various areas of psychology?
- 1.6 Why is psychology considered a science, and what are the steps in using the scientific method?
- 1.7 How are naturalistic and laboratory settings used to describe behavior, and what are some of the advantages and disadvantages associated with these settings?
- 1.8 How are case studies and surveys used to describe behavior, and what are some drawbacks to each of these methods?
- 1.9 What is the correlational technique, and what does it tell researchers about relationships?
- 1.10 How are operational definitions, independent and dependent variables, experimental and control groups, and random assignment used in designing an experiment?
- 1.11 How do the placebo and experimenter effects cause problems in an experiment, and how can single-blind and double-blind studies control for these effects?
- 1.12 What are the basic elements of a real-world experiment?
- 1.13 What are some ethical concerns that can occur when conducting research with people and animals?
- 1.14 What are the basic principles of critical thinking, and how can critical thinking be useful in everyday life?

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▼ RAPID REVIEW

(From Ciccarelli/White *Psychology, Third Edition Study Guide* by Natalie Ceballos ISBN 0205153461)

Psychology is defined as the scientific study of behavior and mental processes. The goals of psychology are to describe, explain, predict, and control the behaviors and mental process of both humans and animals. The goals of psychology can be thought of in terms of what, why, when, and how behaviors and mental processes occur.

The field of psychology is relatively new (about 130 years old) but has its origins in the much older fields of physiology and philosophy. Wilhelm Wundt formed the first psychology laboratory in Germany in 1879. Wundt used the method of **objective introspection** in an attempt to study human thought processes. Because of his innovative efforts to bring objectivity and measurement to the concept of psychology, Wundt is often referred to as the father of psychology. The reality, however, is that multiple people in multiple locations began studying psychology and promoting their particular perspective around the same time. Five historical perspectives are discussed in the text.

Edward Titchener, a student of Wundt's, expanded on Wundt's ideas and brought the method of introspection to the United States. Titchener believed that introspection could be used on thoughts as well as physical sensations. He called his approach **structuralism** because his ultimate goal was to describe the precise structure of our mental processes. At the same time in the United States, William James was focused on discovering how our mental processes help us to function in our daily lives and began to promote his viewpoint known as **functionalism**. The terms *structuralism* and *functionalism* are no longer used to describe specific viewpoints in the field of psychology. Meanwhile, back in Germany, the **Gestalt psychologists** were studying how sensation and perception create a whole pattern that is greater than the sum of the individual components. Max Wertheimer was a major proponent of Gestalt psychology. In neighboring Austria, Sigmund Freud developed his theory of **psychoanalysis** based on the concept of the unconscious. Freud believed the unconscious played an important role in controlling our day-to-day behaviors and thoughts. Freud's theory is also referred to as the psychodynamic perspective. On the opposite end of the spectrum, and back in the United States, was John Watson. Watson expanded the findings of Russian physiologist Ivan Pavlov, to promote the perspective of **behaviorism**. The behaviorists believed that psychology should focus on concepts that could be studied scientifically, and they felt that the only area of psychology that could be approached scientifically was observable behavior.

Today seven major perspectives make up the field of psychology. The **psychodynamic perspective** focuses on the role of the unconscious. **Behaviorism** attempts to study psychology by focusing on observable actions and events. The **humanistic perspective** emphasizes human potential and free will; in other words, it focuses on people's abilities to direct their own lives. **Biopsychology** focuses on the biology underlying our behavior and thoughts, while the **cognitive perspective** focuses on the thoughts or "cognitions" themselves. **Cognitive neuroscience** is a specific area of the cognitive perspective that focuses on the physical changes in the brain that occur when we think, remember, or engage in other mental processes. The **sociocultural perspective** explores the role of social and cultural factors on our behaviors and thoughts, while **evolutionary** psychologists attempt to explain behavior and thoughts in terms of their adaptive or "survival" qualities.

The field of psychology offers many professional opportunities. **Psychiatrists** receive a medical degree (M.D.), treat serious psychological disorders, and can prescribe medication for their patients. A **psychologist** attends graduate school to obtain a doctorate degree (either a Ph.D., Ed.D. or Psy.D.) and can select one of many career options from research to counseling to consulting for a business. A **psychoanalyst** is a psychiatrist or psychologist who has received special training in Freud's method of psychoanalysis. A **psychiatric social worker** receives a Master of Social Work degree (M.S.W.) and provides counseling to patients or possibly conducts research.

Psychologists use the **scientific method** to reduce bias and error in their observations. The steps of the scientific method include asking a question, turning that question into a **hypothesis**—a statement about what you believe the actual answer is—testing your hypothesis, drawing a conclusion, and

reporting your findings. Your findings can then be further strengthened if other researchers conduct a study and draw the same conclusions as you did, or in other words if other researchers **replicate** your findings. The method you use to test your hypothesis depends on which of the four goals of psychology you are attempting to achieve. If you would like to answer the question of “what” (goal = describe), you would use a descriptive method. **Naturalistic observation** provides a realistic picture of behavior but can become biased through the **observer effect** (research participants behave differently when they know they are being watched) and **observer bias** (the researcher only sees what he or she wants to see). Laboratory observation is similar to naturalistic observation but the participants are observed in a laboratory setting instead of “out in nature.” Sometimes a researcher will disguise himself or herself as an actual participant in order to reduce the observer effect. This approach is called **participant observation**. A **case study** is a detailed investigation of one individual, or case, and can provide a great deal of information about that one person. However, case studies are hard to generalize to a larger population. For a **survey**, researchers ask a group of participants a series of questions. Surveys allow researchers to gather a lot of information quickly. However, a survey offers no guarantee that the participants will answer the questions truthfully. Also, researchers must be sure to take a **representative sample** of the **population** in which they are interested. A researcher interested in discovering the relationship between two variables would use the **correlational method**. A **correlation coefficient** tells the researcher the direction and strength of the relationship. The coefficient will always be a number between -1.00 and $+1.00$. A correlation shows that a relationship between two variables exists, but cannot explain the cause of the relationship. In other words, *correlation does not prove causation*. In order to answer the question of “why,” a researcher must conduct an experiment. A true experiment differs from a quasi-experiment in that true experiments use random assignment to sort participants into groups. In a *quasi-experimental design*, the groups are already in place when the participants are recruited for the study (for example, smokers vs. nonsmokers). In an **experiment**, the researcher manipulates a variable (the **independent variable**) and measures some response from the participants (the **dependent variable**). In order to measure the dependent variable, the researcher must come up with an **operational definition** for the variable. An operational definition is a set of instructions that explains exactly how to measure the variable. For example, aggressive behavior could be operationally defined as the number of times a participant swings a toy sword in a five-minute observation period. The overall goal of the experiment is to keep everything the same except for the independent variable. In order to accomplish this, the researcher usually observes two groups: an **experimental group** and a **control group**. The researcher will most likely use **random assignment** to determine which participants will go into which group. Often, the control group receives a fake treatment in order to control for the **placebo effect** in which the participant’s expectations actually influence the results of the experiment. Normally, the participants are not told which group they are in (**single-blind study**). In order to control for any expectations the experimenter might have (the **experimenter effect**) the study is often designed so that neither the participants nor the experimenter know who is in which group (**double-blind study**). All psychological research must follow the ethical guidelines specified by the American Psychological Association.

Understanding the scientific method can help you in your daily life as you apply the four principles of **critical thinking** to problems you face on a day-to-day basis. The four criteria are as follows: (1) most truths need to be tested, (2) all evidence is not equal, (3) authorities are not always right, and (4) an open mind is still important.

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▼ CHANGES FROM CICCARELLI/WHITE'S *PSYCHOLOGY, 2e* TO *PSYCHOLOGY, 3E*

Chapter 1 – The Science of Psychology

- Some “Have you ever wondered...” questions in the chapter prologue have been replaced with new questions.
- Learning Objective 1.12 “What are the basic elements of Amabile’s creativity experiment?” has been replaced with “What are the basic elements of a real-world experiment?”
- Replaced example in *Psychology’s Goals* with Cheryan et al. study (gender stereotypes about computer science).
- New **Issues in Psychology**: *Psychology’s African American Roots*.
- Removal of *Classic Studies in Psychology* section on Mary Cover Jones. This material is now covered in the section on John Watson and behaviorism.
- Removal of neo-Freudian mention, replaced with mention of the proposed link between neurobiology and psychodynamic concepts.
- Condensed explanation of Humanistic Perspective
- Expansion of Biopsychological Perspective:
 - what biopsychologists study
 - reference to the Puts, Jordan, and Breedlove study (homosexuality)
 - reference to the Escandon, Al-Hammadi, and Galvin study (Alzheimer’s)
- The section titled *Psychology: The Science* has been changed to *Psychology: The Scientific Methodology*.
- Removal of *Classic Studies in Psychology* section on Teresa Amabile, replaced with **Issues in Psychology**: *Stereotypes, Athletes, and College Test Performance*.
- New ethical guideline added: “8. If for any reason a study results in undesirable consequences for the participant, the researcher is responsible for detecting and removing, or correcting, these consequences.”
- *Critical Thinking* section moved to **Applying Psychology to Everyday Life**
 - extended description of critical thinking criteria
 - removal of Linus Pauling example
- *Pseudopsychologies* section removed entirely

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Ciccarelli/White, <i>Psychology, 2e</i> Learning Objectives	Ciccarelli/White, <i>Psychology, 3e</i> Learning Objectives
<p>Chapter 1: The Science of Psychology</p> <p>1.1 What defines psychology as a field of study and what are psychology's four primary goals?</p> <p>1.2 How did structuralism and functionalism differ, and who were the important people in those early fields?</p> <p>1.3 What were the basic ideas and who were the important people behind the early approaches known as Gestalt, psychoanalysis, and behaviorism?</p> <p>1.4 What are the basic ideas behind the seven modern perspectives, as well as the important contributions of Skinner, Maslow, and Rogers?</p> <p>1.5 How does a psychiatrist differ from a psychologist, and what are the other types of professionals who work in the various areas of psychology?</p> <p>1.6 Why is psychology considered a science, and what are the steps in using the scientific method?</p> <p>1.7 How are naturalistic and laboratory settings used to describe behavior, and what are some of the advantages and disadvantages associated with these settings?</p> <p>1.8 How are case studies and surveys used to describe behavior, and what are some drawbacks to each of these methods?</p> <p>1.9 What is the correlational technique, and what does it tell researchers about relationships?</p> <p>1.10 How are operational definitions, independent and dependent variables, experimental and control groups, and random assignment used in designing an experiment?</p> <p>1.11 How do the placebo and experimenter effects cause problems in an experiment, and how can single-blind and double-blind studies control for these effects?</p>	<p>Chapter 1: The Science of Psychology</p> <p>1.1 What defines psychology as a field of study, and what are psychology's four primary goals?</p> <p>1.2 How did structuralism and functionalism differ, and who were the important people in those early fields?</p> <p>1.3 What were the basic ideas and who were the important people behind the early approaches known as Gestalt, psychoanalysis, and behaviorism?</p> <p>1.4 What are the basic ideas behind the seven modern perspectives, and what were the important contributions of Skinner, Maslow, and Rogers?</p> <p>1.5 How does a psychologist differ from a psychiatrist, and what are the other types of professionals who work in the various areas of psychology?</p> <p>1.6 Why is psychology considered a science, and what are the steps in using the scientific method?</p> <p>1.7 How are naturalistic and laboratory settings used to describe behavior, and what are some of the advantages and disadvantages associated with these settings?</p> <p>1.8 How are case studies and surveys used to describe behavior, and what are some drawbacks to each of these methods?</p> <p>1.9 What is the correlational technique, and what does it tell researchers about relationships?</p> <p>1.10 How are operational definitions, independent and dependent variables, experimental and control groups, and random assignment used in designing an experiment?</p> <p>1.11 How do the placebo and experimenter effects cause problems in an experiment, and how can single-blind and double-blind studies control for these effects?</p>

Ciccarelli/White, <i>Psychology</i>, 2e Learning Objectives (cont.)	Ciccarelli/White, <i>Psychology</i>, 3e Learning Objectives (cont.)
Chapter 1: The Science of Psychology	Chapter 1: The Science of Psychology
1.12 What are the basic elements of Amabile's creativity experiment?	1.12 What are the basic elements of a real-world experiment?
1.13 What are some ethical concerns that can occur when conducting research with people and animals?	1.13 What are some ethical concerns that can occur when conducting research with people and animals?
1.14 What are the basic principles of critical thinking, and how can critical thinking be useful in everyday life?	1.14 What are the basic principles of critical thinking, and how can critical thinking be useful in everyday life?

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▼ LECTURE LAUNCHERS AND DISCUSSION TOPICS

- How Do We Know What We Know?
- Psychology and Common Sense
- African Americans and Psychology
- Women in the History of Psychology in America
- Biographical Profiles
- Scandal in Psychology—John Watson's Fall from the Throne
- There Are Other Psychologies in the World
- Some Effects of Culture on the Individual
- Psychologists and Prescription Privileges
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Lecture/Discussion: How Do We Know What We Know?

*How do you know that
George Washington was the first president of the United States?
you really have a stomach?*

Dependence on observation is one of the hallmarks of science, but it is not the only way humans acquire knowledge. There are, in fact, many questions that cannot be answered by scientific methods and for which other means of acquiring knowledge are more appropriate. Begin by asking the following questions.

- How do you know that George Washington was the first president of the United States?
- How do you know that you really have a stomach?
- What makes you so sure the sun will rise tomorrow?
- How do you know the color of the shirt I'm wearing?
- How can you be sure that there aren't little creatures inside computers that are responsible for the things computers do?
- Are you sure you don't have a big hole in the back of your pants or skirt?

Authority is one source of knowledge. We know, or believe, that Washington was the first president because we trust the authority of historians and history books. During the centuries that Western civilization was dominated by the Church, the authority of holy writings was believed to be the only dependable way of knowing.

Reason was considered by Renaissance scholars to be the most reliable source of knowledge. If you say, “All humans have stomachs; I am human; therefore, I have a stomach,” you have used deductive reasoning. If you say, “The sun rose today, yesterday, the day before yesterday, and for as long as I or anyone can remember,” you are using inductive reasoning.

Observation is still another way of acquiring knowledge. You know the color of my shirt because you can see the shirt. You assume that you do not have a hole in the posterior of your clothing because you have not observed stares and giggles.

One might use any of these ways of knowing to deny the existence of little creatures in computers. People you perceive to be authorities about computer innards may have told you how they work. You may have reasoned that creatures need nourishment and there is no food supply inside microprocessors. Or you may have looked inside a computer and failed to see little creatures waiting to solve your problems. But there is no way one can absolutely refute the computer-creature hypothesis; so if you want to keep your computer running, maybe you should find out what the little creatures eat. All these ways of knowing—authority, reason, and observation—are used by scientists, but observation must be the basis for knowledge that is scientific. Science puts greater emphasis on evidence provided by the senses than on authority of others or reasoning. Science relies on empirical evidence.

An extension of this activity might involve a discussion of some of the following contradictory beliefs:

Birds of a feather flock together Opposites attract
Absence makes the heart grow fonder Out of sight, out of mind
You can't teach an old dog new tricks Never too old to learn

Often students will have anecdotal stories about each belief. Ask students to think about their beliefs from an empirical point of view. You may want to facilitate discussion by providing students with the following questions:

Can you rely on one person's account to believe in a phenomenon?
How might each set of beliefs be tested empirically?
When will you “believe” in a certain phenomenon?

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Lecture/Discussion: Psychology and Common Sense

A common refrain voiced by laypeople and scientists is that most, if not all, of behavioral science “is just common sense.” Introductory psychology students are particularly apt to make this claim, given that much of their prior exposure to psychology is likely to have been very common-sensical (though perhaps not well-established) claims by a variety of “professionals” on the talk-show circuit. In a nutshell, it’s difficult to counter the “common-sense” stigma when so much of behavior seems to be explainable at an intuitive surface level.

Mark Leary shares some suggestions for discussing this issue with your students. It is true that the subject matter of psychology is much more familiar to most people than is the subject matter of subatomic physics or gastroendocrinological biology; we see behavior all around us, but rarely stumble over a gluon.

Psychology would be an odd science of thought and behavior if it only considered thoughts and behaviors completely foreign to people's experiences, or if its findings always ran counter to most people's beliefs. But neither greater visibility of subject matter nor popular consensus guarantees greater understanding. Many people believed whole-heartedly in flat earths and cheese moons, only to find their common-sense views dismantled in the face of scientific evidence. So too with psychology. Although most people would like to believe that large rewards produce greater liking for a boring task, that the behavior of men and women is determined by their biology, or that absence makes the heart grow fonder, researchers studying cognitive dissonance, sex-role stereotypes, and close relationships would be happy to share their findings to the contrary. In short, the popularity of a common-sense belief may not always support the weight of scientific evidence.

More importantly, psychologists (like all scientists) are primarily engaged in the task of explaining behavior, rather than merely cataloging it. The difference between theory and description—"why" versus "what"—echoes the difference between science and common sense. Common sense certainly helps describe what takes place in behavior, but it doesn't compel us to understand why it takes place. The development of theory in understanding behavior sets science apart from everyday, common-sense accounts.

Leary, M. (1995). *Behavioral research methods* (2nd ed., pp. 24–25). Pacific Grove, CA: Brooks/Cole.

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Lecture/Discussion: African Americans and Psychology

Like women, African Americans faced many obstacles to their education and participation in psychology. Most white institutions would not accept African American students, and when they were able to enroll, they often experienced discrimination. In addition, few undergraduate black colleges offered a major in psychology until after the 1940s. Howard University, the only major black university offering graduate study, awarded 32 Ph.D.s to African Americans from 1920 to 1950. During the same period only eight African Americans earned a Ph.D. from one of the ten most prestigious white universities. Not only was earning the Ph.D. difficult, employment opportunities were scarce for African American psychologists since neither white universities nor organizations in the private sector would hire them. Most taught at black colleges where opportunities to engage in research were limited, thus restricting opportunities for professional recognition. The situation for African American students has improved dramatically in recent years. Kenneth B. Clark, best known for his research on the effects of racial segregation, became the first African American elected as APA president in 1970.

Guthrie, R. V. (1976). *Even the rat was white: A historical view of psychology*. New York: Harper and Row.

Schultz, D. P., & Schultz, S. E. (1996). *A history of modern psychology* (6th ed.). Orlando, FL: Harcourt Brace Jovanovich.

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Lecture/Discussion: Women in the History of Psychology in America

Psychology recently has renewed its appreciation of diversity in human behavior. Part of that diversity includes celebrating the accomplishments and contributions of women to the field of psychology. Share with your students the stories of some key figures from psychology's history:

Mary Whiton Calkins (1863–1930) attended Harvard University and worked with William James, but because Harvard did not officially admit women into graduate programs, Calkins never received a Ph.D. from Harvard. At best, Harvard offered her the degree from its sister school Radcliffe. She refused, stating that she ought to be given the degree from the institution where she earned it. Calkins collaborated with Edmund Sanford from neighboring Clark University on a variety of research projects. At that time, women with advanced degrees or training primarily received faculty positions at female colleges, such as Wellesley and Vassar Colleges. Calkins received a position at Wellesley College in 1887, and established a prolific laboratory in 1891 producing short-term memory research (Madigan & O'Hara, 1992). In 1906, Calkins was the first woman elected President of the American Psychological Association (APA).

Margaret Floy Washburn (1871–1939) was the first person, male or female, to receive a Ph.D. from Edward B. Titchener in 1884, the leading structuralist in American experimental psychology at that time (Goodwin, 1999). She was also the first female to receive a Ph.D. in the United States. Interestingly, Washburn never believed Titchener taught her much, as she became a leading comparative psychologist at Vassar College. She produced her most influential work in *The Animal Mind* in 1908, and in 1921, she was elected the second woman president of APA. She suffered a cerebral hemorrhage in 1937, and died from its complications in 1939 (Scarborough & Furumoto, 1987).

Christine Ladd-Franklin (1847–1930) was a mathematician who developed an interest in visual perception and made great contributions to theories of color vision (Furumoto, 1992). She married a math professor from Columbia University, and she occasionally taught adjunct courses there. However, she was rarely paid. Like Calkins, she did not receive her Ph.D. although she had completed all of the required work. Johns Hopkins University finally granted her the degree shortly before her death. She accepted the degree in person.

At the turn of the 20th century, one popular belief held that there was more variability in intelligence in men than in women. One implication of this belief was that even the brightest of women would never be as bright or even “outshine” the brightest of men. African American psychologist *Leta Stetter Hollingworth* (1886–1939) challenged these beliefs with her research which showed no evidence that the distribution of intelligence test scores differed between men and women (Hollingworth, 1914). She also challenged the popular belief that women’s intellectual abilities were affected by their menstrual cycles, again finding no statistical evidence to support such claims (Silverman, 1992). Hollingworth’s contributions are often seen as the seedlings for the formal study of the psychology of women.

African American psychologist *Mamie Phipps Clark* (1917–1983) received her bachelor’s and master’s degrees from Howard University, and her Ph.D. from Columbia University in 1944. She is well-known for her studies of racial differences in racial identity and self concept (Clark & Clark, 1950). In the 1940s and 1950s racial segregation was becoming institutionalized, and Clark became interested in the effects of segregation on African American children. She conducted a series of studies in which African American and white children were shown black and white dolls. The children were first asked to pick the doll they most looked like, establishing a measure of racial identity. Then, children were asked which doll they would most like to play with. Both white and African American children preferred the white doll, suggesting for both races of children a preference and perhaps more value on being white. Clark’s work was considered and noted in the Supreme Court’s 1954 ruling in *Brown v. Board of Education* desegregation case, which ruled that public school segregation was unconstitutional.

Clark, K. B., & Clark, M. P. (1950). Emotional factors in racial identification and preference in Negro children. *Journal of Negro Education*, 19, 341–350.

Furumoto, L. (1992). Joining separate spheres: Christine Ladd-Franklin, woman-scientist. *American Psychologist*, 47, 175–182.

Furumoto, L., & Scarborough, E. (1992). Placing women in the history of psychology: The first American women psychologists. In J. S. Bohan (Ed.) *Seldom Seen, Rarely Heard* (pp. 337–353). Boulder, CO: Westview Press.

Goodwin, C. J. (1999). *A history of modern psychology*. New York: Wiley.

Hollingworth, L. S. (1914). Variability as related to sex differences in achievement. *American Journal of Sociology*, 19, 510–530.

Madigan, S., & O'Hara, R. (1992). Short-term memory at the turn of the century. *American Psychologist*, 47, 107–174.

Scarborough, E., & Furumoto, L. (1987). *Untold lives: The first generation of American women psychologists*. New York: Columbia University Press.

Silverman, L. K. (1992). Leta Stetter Hollingworth: Champion of the psychology of women and gifted children. *Journal of Educational Psychology*, 84, 20–27.

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Lecture/Discussion: Biographical Profiles

Wilhelm Wundt (1832 – 1920)

Born in Neckarau, Germany, Wilhelm Wundt was the fourth child of a Lutheran minister. Despite coming from a family that boasted numerous scholars, scientists, and physicians, Wundt initially was not a good student. After he dropped out of one high school, a teacher suggested that a reasonable goal for Wundt would be a career in the postal service. Wundt's scholastic abilities improved, however, and in 1855 he graduated at the top of his class in medical school. Wundt then went to Berlin to study physiology with Johannes Müller, and he subsequently decided to become an experimental physiologist himself. Wundt then returned to the University of Heidelberg, where he worked as an assistant for Herman von Helmholtz. It was at Heidelberg that Wundt taught his first course in psychology. The year was 1862.

In 1879, at the University of Leipzig, where he held a chair in philosophy, Wundt established the Institute for Experimental Psychology, the first laboratory whose formal purpose was the scientific investigation of the human mind. Wundt is one of the most prolific contributors to the field of psychology ever. It is estimated that between the years of 1853 and 1920, Wundt wrote 53,735 pages of text. Wundt was not only a voracious writer; he was also responsible for training numerous researchers, some of whom, such as Edward Titchener, brought versions of Wundt's psychology to America.

Sigmund Freud (1856 – 1939)

Sigmund Freud was born in Pribor, Czechoslovakia, in 1856. Although Freud was a gifted student, it took him eight years to finish his medical degree at the University of Vienna, partly because he was interested in so many topics. Freud first pursued a career as a neurologist, but financial concerns forced him into general medical practice. In cooperation with his friend Joseph Breuer, Freud began to treat hysterical women. This is unusual, because at the time there was no known cure for hysteria, which is now known as a conversion disorder. Through trial and error and feedback from his clients, Breuer and Freud developed the technique known as psychoanalysis. Its fundamental rule is honesty; clients must relay all thoughts and feelings uncensored to the analyst. Clients then follow their stream of thought wherever it may lead, a process known as free association. In the course of free association, clients often uncover traumatic events in the past, and, upon reliving these events, often experience relief from their symptoms. Freud's first major work, *The Interpretation of Dreams* (1900), detailed the process of dream interpretation, which he felt was the "royal road to the unconscious." Although it took six years to sell the first 600 copies printed, this work was reprinted eight times during Freud's lifetime.

Although the technique of psychoanalysis is perhaps Freud's most important legacy, he made many other substantial contributions to psychology. These include the recognition of the importance of sexuality and unconscious processes, a fully developed system of personality, and an appreciation for the conflict between individual desires and the constraints of society. His work has influenced so many aspects of our thinking that he is often not given full credit for the development of his ideas. Freud's many detractors are quick to point out that his theories are not based on empirical research. While this is true, just because they lack empirical evidence does not mean that they are wrong, only that they are less likely to be right. Because of the breadth of his intellectual contributions, he remains the most cited psychologist in *Psychology and Life*, 16th Edition, and most comparable texts.

William James (1842 – 1910)

William James, often considered the father of American psychology, was born in New York City, but spent much of his childhood traveling between the United States and Europe, where he attended several private schools. James' interest in such varied fields as philosophy, religion, and science were cultivated

at home in an enriched environment shared with his brother Henry James, the famous author. William James struggled to find a vocation that mated his various interests, trying his hand at art (his paintings have appeared on the cover of recent editions of *American Psychologist*), chemistry, and, finally, medicine. He received his M.D. from Harvard in 1868.

In 1872, James began teaching physiology at Harvard but was preoccupied by his ongoing and deep interest in such philosophical issues as free will and determinism. Though James considered himself a temporary dabbler in the discipline of psychology, his two-volume textbook, *Principles of Psychology* (1890), stood as the field's definitive textbook through the first half of this century. It is still considered one of the best-written texts on psychology and a source of many original ideas. James' contributions to psychology include the notion of a stream of consciousness, the importance of habit and instinct, and a complex theory of the self, theory of emotion, and opening the boundaries of psychology to include topics such as religious beliefs.

B. F. Skinner (1904 – 1990)

Burrhus Frederic Skinner was born and raised in Susquehanna, Pennsylvania and received a bachelor's degree in English from Hamilton College in New York. Skinner enrolled in the experimental psychology program at Harvard and studied under E.G. Boring, earning his masters degree in 1930 and Ph.D. in 1931. In 1936, he began his academic career at the University of Minnesota; then, in 1945, he took a position as chairman of the psychology department at Indiana University. In 1948, however, Harvard offered him a position, which he accepted, and he remained there for the rest of his life. Skinner died of leukemia in 1990.

While Skinner was at Harvard, he was heavily influenced by the work of John B. Watson. From this influence, Skinner dedicated his life's work to studying the relationship between reinforcement and observable behavior. Throughout his career, he insisted that psychology be a scientific, empirically driven discipline. He is considered by many to be one of the most important figures in twentieth century psychology, and his contribution to both clinical and experimental psychology is evident in the work of psychologists who followed his lead, and to this day, extend his work in associative learning research. The principles of reinforcement that he outlined were built on by clinical psychologists and applied to the conceptualization and treatment of mental disorders. The application of behaviorism to clinical psychology was not short-lived, as empirically supported treatments for anxiety disorders (e.g., panic disorder, simple phobia) and child conduct problems are based upon behavioral principles.

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Lecture/Discussion: Scandal in Psychology—John Watson's Fall from the Throne

John B. Watson was a very famous man in his day—something many students never realize, as he usually gets only a few short paragraphs in introductory psychology texts. In fact, at the end of his career in psychology he was an esteemed professor at the world-renowned Johns Hopkins University in Baltimore, Maryland. At one time, he was recognized as an authority on caring for babies, much as Dr. Spock and Dr. Brazelton would later become household words. He was married, a father, and respected in his field.

All of that ended when he was fired over his affair with a beautiful and intelligent graduate student, Rosalie Raynor. Mary Watson, the wronged wife, insisted that the affair stop, as did Watson's employers. But neither Watson nor Raynor wanted the affair to end, and finally Johns Hopkins insisted that he resign. The subsequent divorce from Mary was front page news at the time.

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Lecture/Discussion: There Are Other Psychologies in the World

While introductory psychology books have enough to cover without taking on the whole world, it is important to remember that Western Psychology is not the only game in town. All cultures have implicit or explicit psychological theories, theories of how the mind works, that have been developing for thousands of years. Some, like Mayan theories were almost completely lost after their cultures were all but wiped out by European invaders. Others, like Tibetan Abhidharma, are written down, have continued to develop and have found overlap with Western psychological traditions.

Tibetan Psychology;

<http://www.orientalia.org/books-Tibetan+Psychology.html>

APA Monitor: <http://www.apa.org/monitor/dec03/tibetan.html>

<http://www.tibetanclassics.org/tranproj7.html>

Mind in Buddhist Psychology:

<http://www.dharmapublishing.com/page.cfm?doc=bookpage&wikiid=1168&wpid=&bookid=223>

Japanese Psychology

History of Japanese Psychology: <http://psychology.okstate.edu/museum/japanese/>

<http://web-jpn.org/links/education/academic/psychology.html>

<http://www.todoinstitute.org/>

Morita Therapy: <http://www.morita-therapy.org/>

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Lecture/Discussion: Some Effects of Culture on the Individual

One aspect of cross-cultural psychology addresses the similarities and differences among cultures around the globe. However, in our modern world, diversity is no longer restricted to comparing the culture we know with one we consider to be exotic or strange. A more relevant issue is to address diversity within our own society, and a critical element in that regard is to explore the effect of cultural intermingling on individuals. Many researchers have done just that. For example, Jean Phinney has conducted extensive research on various aspects of ethnic identity, particularly among college students (see, e.g., Phinney, 1989, 1990; Phinney & Alipuria, 1990, 1996).

She has correctly noted that “ethnicity is a complex multidimensional construct that, by itself, explains little” (1996, p. 918). Among the many elements Phinney notes to play an important role in understanding ethnicity are cultural norms and values (she defines ethnicity in the United States as “broad groupings of . . . [people] on the basis of both race and culture of origin,” but excluding the “dominant White majority,” pp. 918-919). In a recent paper, Phinney and Madden (submitted for publication) looked at the relationship between intergenerational value discrepancies and life satisfaction for three groups of immigrant families: Armenian, Vietnamese, and Mexican. They found that generally, the greater the discrepancy between parents and their adolescent children in terms of language and peer group affiliation, the lower the life satisfaction. Thus, when children lacked fluency in their ethnic language and did not

associate extensively with other teens from their ethnic group, they expressed greater dissatisfaction with their lives. Interestingly, this was totally independent of how well their parents spoke English, leading the investigators to believe that it is not a matter of being unable to communicate with parents, but rather, that the “lack of proficiency . . . is part of a broader pattern of lower involvement in their ethnic culture, . . . that leads to greater differences with their parents” (p. 8).

Other researchers have approached issues of life satisfaction from other vantage points. For example, John Berry (1997a) describes four different strategies of acculturation when dominant and non-dominant groups come together to form culturally plural societies. Berry notes that the groups, and their individual members, must resolve two critical issues: first, is it considered to be of value to maintain one’s identity and characteristics, and second, is it considered to be of value to maintain relationships with the larger society? Responding “yes” to both questions results in integration (or pluralism). Responding “yes” to the first, but “no” to the second, will result in either separation (if that is the choice of the non-dominant group) or segregation (refusal of the dominant group to allow entry by the non-dominant group). When groups, or individuals within groups, deny the value of their own identity and characteristics and opt instead for those of the dominant group, the result is assimilation. The final strategy, rejecting the value of one’s own group as well as those of the larger society, leads to marginalization, a sense of being “on the fringes” of society. Berry (1994) noted that individuals who adopt this fourth strategy of marginalization “lose cultural and psychological contact with both their traditional culture and the larger society. They characteristically strike out against the larger society and experience feelings of alienation, loss of identity, and acculturative stress” (p. 127). Conversely, on a societal level, pluralism can offer many benefits: “[C]ultural diversity enhances society’s adaptability: alternative ways of living are available in the social system when attempting to meet changing circumstances, due to the changes in a society’s ecological or political context” (1997b, p. 18).

In a similar vein, LaFromboise (e.g., 1988), in her research with Native Americans, describes the risk factors posed to Native Americans by becoming alienated from their own cultural traditions. She has documented the high rates of alcoholism, depression, and suicide for Native Americans who feel disconnected from their heritage and the reduction in those rates when they are reunited with their culture. Clearly, the field of cross-cultural psychology, then, is not limited to the global study of differences among nations; it also focuses on addressing the impact of cultural influences on individuals and society within nations.

- Berry, J. W. (1994). An ecological perspective on cultural and ethnic psychology. In E. J. Trickett, R. J. Watts, & D. Birman (Eds.), *Human diversity: Perspectives on people in context*. San Francisco: Jossey-Bass Publishers.
- Berry, J. W. (1997a). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review*, 46(1), 5-68.
- Berry, J. W. (1997b). Individual and group relations in plural societies. In C. S. Granrose & S. Oskamp (Eds.), *Cross-cultural work groups*. Thousand Oaks, CA: Sage.
- LaFromboise, T. (1988). American Indian mental health policy. *American Psychologist*, 43(5), 388-397.
- Phinney, J. S. (1989). Stages of ethnic minority development in minority group adolescents. *Journal of Early Adolescence*, 9, 34-49.
- Phinney, J. S. (1990). Ethnic identity in adolescents and adults: A review of research. *Psychological Bulletin*, 108(3), 499-514.
- Phinney, J. S., & Alipuria, L. (1990). Ethnic identity in college students from four ethnic groups. *Journal of Adolescence*, 13, 171-184.
- Phinney, J. S., & Alipuria, L. (1996). At the interface of culture: Multiethnic/multiracial high school and college students. *Journal of Social Psychology*, 136, 139-158.
- Phinney, J. S., & Madden, T. (submitted for publication). Intergenerational value discrepancies and life satisfaction in immigrant families: The role of language and peer interaction.

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Lecture/Discussion: Psychologists and Prescription Privileges

During discussions about the various mental health professions, I usually mention the great debate regarding prescription privileges for psychologists. Students are fascinated by the political and public dissention caused by this movement. They tend to understand the desire of the psychiatrists to “protect

their turf,” yet they also understand how prescription privileges could improve psychological services to clients. A detailed discussion of the topic is found in the APA Monitor article referenced below.

<http://www.apa.org/monitor/apr02/newmexico.html>

For further information on this topic, APA has created a Prescription Privileges Fact Sheet for Students:
<http://www.apa.org/apags/profdev/presprov.html>

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Lecture/Discussion: Careers in Psychology

In a mad rush to begin covering the tremendous amount of material in introductory psychology, many instructors overlook more practical issues that would be of interest to introductory students, especially those who think they might major in psychology. It's never too early to introduce students to psychology as a profession, and even students who do not major in psychology are bound to gain a greater understanding and appreciation for the field. After discussing the various subfields of psychology, devote some time (perhaps a class session) to issues pertaining to psychology as a career choice. There are a variety of activities and topics you could introduce, and several suggestions are given here.

To promote early student involvement in psychology, describe the goals and activities of Psi Chi, the National Honor Society in Psychology. Tell students (or better yet, bring in the Psi Chi President to tell students) about the requirements for joining (e.g., psychology major or minor, 3.0 GPA overall and in all psychology courses, completion of 3 semesters or 5 quarters of college courses) and the benefits of membership (e.g., interaction with psychology faculty and majors, participation in worthwhile activities related to psychology, an important honor that will be noticed by graduate schools). Along the same lines, explain to students how they might become student affiliates of the two biggest professional organizations in psychology, the American Psychological Association (APA) and the American Psychological Society (APS). Both organizations have student application forms that you can make available (Call APA at 800-374-2721; APS at 202-783-2077). Stress to students the benefits of presenting their research (perhaps in their sophomore or junior years) at one of these national conferences or perhaps at a regional one (e.g., Southwestern Psychological Association, Western Psychological Association).

Give your students the “straight dope” about graduate school -- how to get in, what it's really like, and what opportunities it affords. Tell students how you got interested in your major field and what life in graduate school was like. Explain degree plans (including how many years it takes, what is expected in the way of course work and research), funding opportunities (many students are surprised that teaching and research assistantships actually cover most graduate school expenses), and research and teaching opportunities. Bring in the latest edition of APA's Guide to Graduate Study in Psychology and give an overview of its purpose. Briefly outline for students what they should be doing during each year of their undergraduate career if they are interested in going to graduate school (e.g., when to study and take the GRE, when to send for applications, when to get research experience, when to ask for letters of recommendation). Encourage students to seek out a close relationship with a faculty member whose research interests coincide with theirs.

Finally, discuss career opportunities in psychology. Bring to class recent issues of the *APA Monitor* and *APS Observer* and show students representative job listings and requirements for consideration. Show either of two excellent APA-produced videos, *Careers in Psychology: Your Options are Open* (a brief, 9-minute segment that features a panel of psychologists from different specialties discussing career opportunities) or *Career Encounters in Psychology* (a longer, 28-minute segment that provides an overview of the diverse specializations and careers in psychology through interviews with several different types of psychologists). Have someone from your career counseling center give a talk on

opportunities for psychology majors (he or she may also have data on the current employment status of recent psychology graduates). Better yet, invite to class (a) a psychologist from an applied setting (e.g., a clinician in private practice, an industrial/organizational psychologist, a sports or forensic psychologist) and (b) a psychologist who works in an academic setting (this could be you, another faculty member at your college or university, or someone outside your institution) to talk about career opportunities and experiences.

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Lecture/Discussion: Case Studies of Vietnam War Experiences

An excellent example of how the case study works in psychological research is the work of Lambright (2003), who studied the responses of six Vietnamese volunteers (varying in age from 24 to 68) to the disruption in their daily lives, occupations, and the cultural adjustments brought about by the war in Vietnam. She conducted the interviews individually, in different locations throughout Vietnam during June and July of 2002. The six volunteers, from whom she obtained written consent, answered seven questions. While the standard seven questions might suggest that this face-to-face interview was a highly structured one, Lambright was in fact free to follow up any interesting answers with more questions as the need arose, making the interview an unstructured one. Here are two brief excerpts from those interviews, answers to the question “What about your culture explains its resilience during sustained disruption (such as war, famine, social and political crises)?”

(Nguyen Ban, 24) “A happy stable family takes care of each other...we all overcome together. We have a solid base to stand on... The Vietnamese are very flexible, adaptable to the situation. They are resilient; in the hard time they are unified and come together in a community to fight against the enemy...”

(Le Minh Viet, 68): Resilience, without the ability to adapt under circumstances, we wouldn’t have survived the Chinese domination, the French, and all the wars over the centuries. Circumstances shape the attitudes, the emotions, and the behaviors. All of us are used to war situation and became acclimated so it minimizes trauma.”

Notice that while both interviewees stress the adaptability of the Vietnamese, the younger Nguyen seems focused on how Vietnamese people might react in some future conflict—Nguyen did not live through wartime. The older Minh did experience the war, and talks more about how the past affects his culture now. This kind of detailed information is only possible in a case study style of research. Mere observation would not provide the answers to Lambright’s questions.

Interview Questions:

1. What about your culture explains its resilience during sustained disruption (such as war, famine, social and political crises)?
2. What lessons have been learned as a result?
3. How have these lessons been integrated into the current society?
4. Can you share some examples of adjustment to the turmoil, examples known within your area of expertise or with which you are personally familiar?
5. Can you give examples of maladjustment known within your area of expertise or with which you are personally familiar?
6. In thinking about your answers, what do you see as being particular to the Vietnamese culture that explains your response to the above questions?
7. Is there anything else you would like to add to this interview?

Lambright, L.L. (2003) Paper presented at International Conference, Midwest Institute for International/Intercultural Education, Cleveland, Ohio, April.

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Lecture/Discussion: Correlations and Causal Relationships

There seems to be a general human tendency to attribute causality to correlated events. The lay person, like the psychologist, often imposes patterns of (apparently) lawful regularity on observed events. Given what is perceived as an “effect,” we search for causes. Events are more likely to be singled out for attention and analysis when they are unusual, anomalous, and discontinuous with our prior experience. When such events are natural phenomena, they are typically relegated to the status of “cause” and then the search is directed toward their aftereffects.

One of the most persistent instances in which pseudo-correlations of behavior consequences are reported to flow from salient natural and human events is the “baby boom” syndrome. For example, the allegation of increased births nine months after a major power blackout in New York is well known. So too, is the baby boom in Israel nine months after their war with Egypt.

Invariably, when base rate data are used to compare the assumed “increase in births,” the effect vanishes. That is, when seasonal fluctuations in births are taken into account, there is no unusual effect left to relate to the nine-months-earlier unusual event. But that does not deter the correlation seekers. Three University of North Carolina sociologists attributed a 1955 drop in Southern birth rates to the Supreme Court’s 1954 school desegregation decision (Rindfuss, Reed, & St. John, 1978). They theorized that uncertain prospects for the future “demoralize” prospective parents (both whites and, to a lesser extent, blacks), causing them to postpone any children they might otherwise have conceived in the three- or four-month period immediately following the decision. The subsequent recovery in the birth rate is attributed to the realization that desegregation would in fact proceed slowly.

And on it goes. Less than a week after Chicago’s “Blizzard of ‘79,” at least one newspaper columnist was speculating on the possibility of a baby boom in the coming autumn (Kup’s column, *Chicago Sun-Times*, January 17, 1979, p. 52).

Another example of the temptation to confuse correlation with a causal connection is in the area of extramarital sexual affairs. Biracree (1984) found that for men there was an almost perfect positive correlation between annual income and the percentage of men who had been unfaithful to their wives. This relationship was not true for married women. If this finding is valid, what are the possible explanations for these relationships? Is there any strong evidence to support any of these explanations, or are they, at the moment, speculations?

Biracree, T. (1984). *How you rate: Men and How you rate: Women*. New York: Dell.

Rindfuss, R. R., Reed, J. S., & St. John, C. A. (1978). A fertility reaction to a historical event: Southern white birthrates and the 1954 desegregation ruling. *Science*, 201, 178-180.

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Lecture/Discussion: Independent and Dependent Variables

In the cereal and fruit example, the cereal and the fruit are independent variables and the rash is the dependent variable. One useful way of thinking about and identifying independent and dependent variables is to remember that the basic hypothesis underlying any experiment is “X causes Y” (coloring a

movie [X] changes the way people respond to it [Y]; a cereal [X] caused a rash [Y]; a fruit [X] caused a rash [Y]). To test such hypotheses, X is manipulated in order to determine its effect on Y. Thus, X is the independent variable and Y is the dependent variable. Advise students that, when trying to identify independent and dependent variables (as might happen in the context of an exam question), they should put the variables in the scenario into an “X causes Y” statement.

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Lecture/Discussion: The Placebo Effect

The power of suggestion is powerful indeed. Consider the example of the placebo effect. During the 1950s, surgeons routinely performed a simple operation to relieve chest pain suffered by patients with angina pectoris. An amazing number of the patients—nearly 90 percent—reported relief from pain. An experimental study divided angina patients into two groups and informed them that they were going to have an operation that had a very high success rate in relieving angina pain. The actual surgery was performed on only half the patients. What was done with the other half would no longer be allowed according to ethical medical standards? The surgeons took the remaining half of the patients, put them under anesthesia, made the surgical incision in their chests, and then simply sewed them up again. When the patients awakened in the recovery room, they were told that the operation had been performed (Cherry, 1981). The patients who had the sham surgery did even better than the patients who had undergone the actual operation! Their pain had been relieved simply by the power of suggestion. Remind students of the aspirin study and ask why the researcher included a placebo.

Cherry, L. (1981, September). Power of the empty pill. *Science Digest*, 116, 60–67.

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Lecture/Discussion: The Road from Hypothesis to Conclusion

How do we know that cigarette smoking is dangerous to your health?

Cigarette smoking became common in Europe after French and British soldiers picked up the habit from Turkish soldiers in the Crimean War of 1854 to 1856. The habit was adopted by a few Americans in the next 30 or 40 years. The tobacco was strong and they rolled their own. More American males began to smoke after the automatic cigarette-making machine was perfected in North Carolina in the 1880s. Very few women smoked, at least in public, until after World War I when U.S. tobacco companies began to target women with their advertising.

People must have suspected that cigarettes are dangerous to health long before any research was done. The slang term for cigarettes, “coffin nails,” was used during the first half of the century.

The conjecture became a hypothesis when doctors noticed that many people who died of lung cancer had been heavy smokers, and it was also suspected that nicotine affects the circulatory system. Early studies produced high negative correlations between cigarette smoking and age at death: the more people smoked, the younger they were when they died.

This correlational data resulted in the first warning labels on cigarettes in the 1960s: “Caution: The Surgeon General has determined that cigarette smoking may be hazardous to your health.” Notice that the warning reads “may be hazardous,” rather than “is hazardous.” The conservative warning is all that is justified by correlational data. A relationship between variables does not imply that the variables are

causally related. The earlier death of smokers could be for reasons other than cigarette smoking. Perhaps smokers live more stressful lives, and both the smoking and their illness are the result of stress. Also, it is possible that smokers are not as careful of their health in other ways as nonsmokers; maybe they don't exercise or have nutritious diets. Or perhaps both the smoking and the mortality have a genetic basis.

To do a definitive experiment on the effects of smoking, one would need to get a sample of 100 or so young people who have never smoked and assign them randomly to a smoking group and nonsmoking group. The smokers would smoke at least one package of cigarettes a day for life, beginning at age 16 or 18, and the nonsmokers would not smoke at all. The dependent variable is age at death, and the successors of the original researchers could not analyze the data until all the subjects died. If the nonsmokers lived significantly longer, the researchers would be justified in concluding that cigarette smoking is hazardous to health.

An experiment like this has not been done, and probably never will be done. In the 1970s the label on cigarette packages was changed to read, "Cigarette smoking is dangerous to your health." The evidence that prompted this change came from several sources. One source was studies that tried to match smokers and nonsmokers on various alternative causes, such as stress, and thus to control for its effects on health. Another source of evidence came from animal studies. The conclusions that cigarettes are truly "coffin nails" is based on large amounts of data and a multitude of studies.

Many studies were required to get from a hypothesis to a firm conclusion in the establishment of a causal link between smoking and disease and death. The reason is that there are humane and ethical constraints that rule out certain types of research. Because humans are the primary focus in psychology, it is often difficult for us to get answers to important questions. As just one example of this, we would like to know if child abuse has permanent effects on personality, and if so, what these effects are. But we cannot assign infants at birth to be abused or not abused, so to study this question we must try to tease out these effects from the mass of environmental variables that affect the development of human personality.

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Lecture/Discussion: An Experimental Example

Can vitamins increase IQ?

Suppose you hear about a retarded boy who did better schoolwork after being given a dose of a vitamin-mineral supplement, and you decide to conduct an experiment to see if intellectual functioning of retarded children can really be improved by such a diet supplement. You start with the hypothesis, "A vitamin-mineral supplement (independent variable) added to the diet of mentally retarded children will improve their intellectual functioning (dependent variable)."

Your first task is to define your variables more precisely. What vitamins and minerals will you use, and at what strength? How many times a day and for how many months? You may decide to use an IQ test score as a numerical measure of your dependent variable; you may also decide that you will require a minimum increase in the number of points as acceptable evidence of improvement, because many chance factors can influence test scores.

You draw your subjects from a group of children who have all been tested and diagnosed as mentally retarded, and you randomly assign them to either the experimental group, who will get the supplement, or the control group, who will be given a placebo (some inert substance) instead of the supplement.

There are several precautions you will need to take to avoid bias in your results. Besides controlling for similarity of your two groups at the start, you will want to be sure that the subjects in both groups are exposed to all the same conditions during the experiment except for the exposure to the independent variable, the nutritional supplement. Temperature, timing, instructions, conditions of testing, and other events during the time of the experiment should be as similar as possible for the two groups.

Your own desires to prove or disprove the idea that vitamins may increase school performance may be a possible source of bias. To reduce this bias, would you conduct a single-blind or double-blind experiment?

For a fixed period of time, say four months, the children in the experimental group receive the supplements in tablets at each meal. The control-group children also receive tablets, but they contain nothing of biological value (a placebo). Neither the children nor those working with them or testing them know which child is getting which kind of tablet. At the end of the four months, intelligence tests are given again to see if the groups now differ.

You may find that both groups have higher scores than originally, perhaps from all the extra attention they have been receiving or from some natural development over this period. So you use the control group's scores as a baseline and compare the experimental group's scores with that baseline.

If you find no difference, the study may end there, or you may try variations, perhaps a stronger supplement or a longer time period or subjects who are less retarded.

If you do find a difference in your original study, you will evaluate the probability that your obtained difference could have occurred by chance alone, even without the independent variable. If it is unlikely that it is a chance finding, your confidence in the hypothesis is increased.

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Lecture/Discussion: Human Factors Design Research

Objective: To illustrate the importance of considering human factors in the design of everyday devices and objects.

Materials: Internet access and a device for taking digital photographs (cell phone, camera, etc.)

Background: One of the goals of human factors research is to help design everyday devices so that they are easy to use. For example, devices should be designed so that it is obvious how to use them.

Unfortunately, many companies do not follow basic design rules when creating new products. As a result, many common devices are frustrating to use or are regularly misused.

Procedure: The website Bad Human Factors Designs (<http://www.baddesigns.com>) contains dozens of examples of everyday devices that violate basic design principles. Have students explore the website in class or on their own time. Then, challenge students to find their own example of a “bad design.” Have students email or upload to the class website a digital photograph of the bad design, along with a short explanation of how the design fails to take into account the basic cognitive or behavioral tendencies of its likely users. In addition to sharing their bad design find with the class, students can submit them directly to the Bad Human Factors Designs webmaster at: mike@baddesigns.com. If he likes the submission, it may find its way onto the website!

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Lecture/Discussion: Applied Experimental Psychology in the Real World

Students often have difficulty wondering how general research results can be applied to the real world. In other words, “How does this relate to me?” The following example provides connections between basic research in sensation and perception and possible military or medical errors.

A number of devices use sound (beeps, clicks, etc) to provide feedback regarding bodies, structures or machines. These sounds are designed to provide people with information about changes in the current situation. For example, in medicine, drops in heart rate or blood pressure are signalled with beeps. Jet pilots receive information regarding positioning in the form of sounds as well. The purpose of these devices is to provide immediate auditory feedback that signals potential problems. The auditory nature allows the surgeon or pilot to be visually focused on something else at the time.

Unfortunately, results of recent research (Neuhoff, Kramer, and Wayand, 2002) suggest that people often misperceive how sounds change when both their pitch and loudness change. Rather than noticing the changes immediately and accurately noting the meaning of the changes, individuals may miss the changes entirely or misinterpret them. Because of this misperception, people can't accurately judge the intended meanings of the sounds. Real-world complications that could arise from this problem range from medical mistakes to serious pilot errors. For example, if a pilot does not accurately identify the sounds of the flight system that are designed to alert him/her of possible mechanical issues, the chances of mechanical failure or crashes may be increased. This result is contrary to the purposes of those feedback systems which are designed to enhance safety. It appears that the initial assumptions of inventors/creators of these systems regarding the accuracy of human interpretations of the sounds may have been incorrect.

<http://www.apa.org/releases/auditory.html>

Neuhoff, J. G., Kramer, G., & Wayand, J. (2002). Pitch and Loudness Interact in Auditory Displays: Can the Data Get Lost in the Map? *Journal of Experimental Psychology—Applied*, Vol. 8. No.1

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Lecture/Discussion: Animals in Psychological Research

Should animals be used in psychological research?

A controversial issue in psychology, and in many other fields of study, involves the use of animals in research. Is it ethical to subject animals to unnatural and/or painful situations in the pursuit of knowledge about the human condition? You might present students with some additional information about the use of animals in psychological research and the nature of the debate.

Psychologists who study animals are sometimes interested in comparing different species or hope to learn more about a particular species. Their work generally falls into the area of basic science, but often it produces practical benefits. For example, using behavioral principles, farmers have been able to reduce crop destruction by birds and deer without resorting to their traditional method – shooting the animals. Other psychologists are primarily interested in principles that apply to both animals and people. Because many animals have biological systems or behavioral patterns similar to those of human beings, using animals often allows more control over variables than would otherwise be possible. In some cases, practical or ethical considerations prevent the use of human beings as subjects. By studying animals, we can also clarify important theoretical issues. For example, we might not attribute the greater life expectancy of women solely to “lifestyle” factors and health practices if we find that a male-female difference exists in other mammals as well.

As the text points out, those who support the use of animals in research argue that animal studies have led to many improvements in human health and well-being. In recent years, however, animal research has provoked angry disputes over the welfare of animals and even over whether to do any animal research at all. Much of the criticism has centered on the medical and commercial use of animals, but psychologists have also come under fire. Critics of animal research have pointed to studies that produce no benefits for human beings but involve substantial harm to the animals being studied. A few years ago, for instance, a Maryland psychologist studying the nervous system was convicted of cruelty to animals after he cut the nerve fibers controlling limb sensation in 17 monkeys. The purpose of his research was to find ways to

restore the use of crippled limbs in stroke victims. The charges alleged abusive treatment of the animals. The psychologist's conviction was eventually reversed on appeal, but by then the government had withdrawn its funding of the project.

People have staked out extreme positions on both sides of this debate. The controversy has often degenerated into vicious name-calling by extremists on both sides. Some animal rights activists have vandalized laboratories, and threatened and harassed researchers and their families; some scientists have unfairly branded all animal welfare activists as terrorists (Blum, 1994). A more positive result of the debate has been the close examination of the American Psychological Association ethical code for the humane treatment of animals and the passage of stricter federal animal welfare regulations governing the housing and care of research animals. Most psychological organizations, however, oppose proposals to ban or greatly reduce animal research. The APA and other organizations feel that protective legislation for animals is desirable but must not jeopardize productive research that increases scientific understanding and improves human welfare.

<http://www.rgs.uky.edu/ori/univet/resources/Handbook/hb-ethics-history.htm>
<http://www.the-aps.org/publications/tphys/legacy/1983/issue5/271.pdf>

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Lecture /Discussion: A Historical Perspective on Research Ethics

When discussing the ethical treatment of human research participants several “classic” studies, which would be ethically questionable by today’s standards, serve as examples. For instance, many instructors discuss Stanley Milgram’s studies of obedience, Philip Zimbardo’s prison simulation, or Stanley Schachter’s studies of autonomic arousal and attribution. Students often have mixed reactions to these examples. Some find them relatively innocuous, whereas others have strong reactions to the treatments participants were asked to endure. The fact that such studies took place within relatively recent times compounds the issue. Some students see these 1960s experiments as “long ago and of a different time,” whereas others see them as examples of the “unethical treatment psychologists still foist on people to this day.”

To provide a context for these types of issues, your students might be interested in hearing about older examples of ethically questionable research. For example, Carney Landis, a noted psychologist of the 1920s and 1930s, conducted a series of studies dealing with the experience and expression of emotion. In one set of studies he was particularly interested in capturing facial expressions of emotion, and used strong elicitors of emotion to produce them. For example, one situation involved dropping a lit firecracker underneath an unsuspecting subject’s chair, whereas another involved showing participants pornographic (for their day) photographs and photos of horribly disfiguring skin diseases.

Although these manipulations may seem harsh, Landis used stronger ones as well. For example, participants were instructed in one situation to plunge their hand into a pail of shallow water that, unbeknownst to them, contained 3 live frogs. (This manipulation was presumably used to evoke disgust.) To quote Landis, however...“After the subject had reacted to the frogs the experimenter said, ‘Yes, but you have not felt everything yet, feel around again.’ While the subject was doing so he received a strong...shock from an induction coil, attached to the pail by concealed wiring.”

And for the *coup de grâce*:

“The table in front of the subject was covered with a cloth. A flat tray and a butcher’s knife were placed on the cloth. A live white rat was given to the subject. He (sic) was instructed, ‘Hold this rat with your left hand and then cut off its head with the knife.’ ...In

five cases where the subjects could not be persuaded to follow directions the experimenter cut off the head while the subject looked on.”

Mention is also made of a final experiment involving shock which “...varied from a just noticeable intensity to a strength which caused the subject to jump from the chair,” as well as other studies. Landis’ participants, in passing, included graduate students, a stenographer, a school teacher, and a thirteen-year-old boy with high blood pressure.

Although Landis has been singled out for examination here, there certainly are no lack of experiments from the 1920s through the 1960s work mentioned above that can provide examples of ethically dubious research. Discussing such studies, especially in light of current APA standards, should produce spirited discussion among your students.

Landis, C. (1924). Studies of emotional reactions II: General behavior and facial expression. *Comparative Psychology*, 4, 447-509.

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Lecture/Discussion: Pseudopsychology and the Mozart Effect

Before discussing pseudoscience, ask students about their impression of the so-called Mozart effect. Most students have heard of the general phenomenon and have seen advertisements and CDs of music “designed to increase your children’s IQ.” Bring in a magazine advertisement and read from it, touting the merits of the product. Ask students if they believe it, and if they would buy the product. Probe them by asking what “proof” they would need that the product actually works. Usually, students will begin to question the merits of the product, at which point you can discuss the actual psychological findings of this moneymaking gimmick by summarizing the work of Steele, Bass, and Crook (1999).

Pseudoscience quite literally means “false science.” Its “claims [are] presented so that they appear scientific even though they lack the supporting evidence and plausibility” (Shermer, 1997, p. 33). Furthermore, pseudoscience appears to use scientific methods and tries to give that “science-y” impression. Some characteristics of Pseudoscience include the following: (<http://www.pseudoscience.org>)

1. associates itself with true science
2. relies on and accepts anecdotal evidence
3. sidesteps disproof
 - a. any possible outcome is explained away
 - b. a theory is not a good theory if it can explain everything because it can never make specific predictions
4. dangerously reduces complexity to simplicity (to a consumer society)

Ask students why the Mozart effect would be considered pseudoscience based on the 4 aforementioned characteristics. Have students give other examples of possible pseudoscience such as graphology, palmistry, aromatherapy, and quite arguable Eye-Movement Desensitization and Reprocessing (EMDR).

There is an excellent video clip entitled “Paper Personality” by *Scientific American Frontiers* that shows the downfalls of graphology, and a companion website for teaching activities related to graphology:

http://www.pbs.org/safarchive/4_class/45_pguides/pguide_802/4482_paper.html

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“Paper Personality” (Running time: 8:46). Chedd-Angier Productions (1997). Scientific American Frontiers: Season VIII: Beyond Science? Episode 2 of 5. [Television series episode].

Available to purchase: <http://www.shop.pbs.org>

View online: <http://www.pbs.org/saf/archive.htm> (Keyword: paper personality)

Steele, K.M., & Bass, K. E., & Crook, M. D. (1999). The mystery of the Mozart effect: Failure to replicate. *Psychological Science*, 10, 366–369.

Shermer, M. (1997). *Why people believe weird things: Pseudoscience, superstition, and other confusions of our time*. New York: W. H. Freeman & Co.

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▼ **CLASSROOM ACTIVITIES, DEMONSTRATIONS, AND EXERCISES**

- Misconceptions About Psychology
- Psychology's Goals Applied to Matchmaking
- Promoting Cultural Awareness
- Perspectives in Psychology
- Which Famous Psychologist Am I? (NEW in 3e)
- Psychologists' Twenty Questions
- Brainstorming Definitions (NEW in 3e)
- Are Psychologists Scientists?
- Can Science Answer This Question?
- Experimental Design
- Observational Research in the Dining Hall
- Naturalistic Observation
- Psychology in Social Problems (NEW in 3e)
- Understanding Correlations
- Correlational and Experimental Research
- Quiz on Correlation (NEW in 3e)
- Testing Random Assignment
- Small Samples
- Which Method Would You Use?
- Name That Research Method
- Using Memory to Demonstrate Methodology
- Give the Doctor Some Advice
- Wonder Horse Dials 911 to Save Boy's Life
- Softens Hands While You Do Dishes
- Critical Thinking (NEW in 3e)
- Introducing Controversies in Introductory Psychology Classes (NEW in 3e)
- Critical Thinking
- Crossword Puzzle
- Fill-in-the-Blanks

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One of the most popular and venerable activities for the introductory course is the administration and subsequent discussion of misconceptions about psychology. Although a new 65-item multiple-choice test was developed by McCutcheon (1991), the most popular test is the Test of Common Beliefs developed by Vaughan (1977). Vaughan's test, however, has been criticized for the ambiguity of some of the items (Brown, 1984; Gardner & Dalsing, 1986; Ruble, 1986), the fact that all items have "false" as the correct response, which may lead to a response set tendency (Vaughan, 1977), and the finding that many of the items are not really misconceptions since they are often correctly answered (Gardner & Dalsing, 1986; Lamal, 1979). Griggs and Ransdell (1987) compared responses to Vaughan's Test of Common Beliefs from students that had taken an introductory psychology course in high school to those of several other studies (Lamal, 1979; Gardner & Dalsing, 1986; Vaughan, 1977). Using a criterion of at least a 50% error rate for an item (that is, they were answered as "true"), they identified 15 questions that met the criterion in at least two studies and had not been subject to earlier criticisms of ambiguity. These items are reproduced in **Handout Master 1.1** and are ordered from highest to lowest with respect to their average error rate. You can administer these items to your class and use the responses as a starting point for a discussion on common sense notions and misconceptions about psychology. You may want to note to

your students that many of these items are also answered incorrectly by psychologists and other social scientists (see Gardner & Hund, 1983). You can also tell your students that the correct answers to many of these items are discussed in their textbook.

- Brown, L. T. (1983). Some more misconceptions about psychology among introductory psychology students. *Teaching of Psychology*, 10, 207–210.
- Brown, L. T. (1984). Misconceptions about psychology aren't always what they seem. *Teaching of Psychology*, 11, 75–78.
- Gardner, R. M., & Dalsing, S. (1986). Misconceptions about psychology among college students. *Teaching of Psychology*, 13, 32–34.
- Gardner, R. M., & Hund, R. M. (1983). Misconceptions of psychology among academicians. *Teaching of Psychology*, 10, 20–22.
- Griggs, R. A., & Ransdell, S. E. (1987). Misconceptions tests or misconceived tests? *Teaching of Psychology*, 14, 210–214.
- Lamal, P. A. (1979). College students' common beliefs about psychology. *Teaching of Psychology*, 6, 155–158.
- McCutcheon, L. E. (1991). A new test of misconceptions about psychology. *Psychological Reports*, 68, 647–653.
- Ruble, R. (1986). Ambiguous psychological misconceptions. *Teaching of Psychology*, 13, 34–36.
- Vaughan, E. D. (1977). Misconceptions about psychology among introductory psychology students. *Teaching of Psychology*, 4, 138–141.

Reprinted from Hill, W. G. (1995). Instructor's resource manual for *Psychology* by S. F. Davis and J. J. Palladino. Englewood Cliffs, NJ: Prentice Hall.

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Activity: Psychology's Goals Applied to Matchmaking

(This class exercise was adapted from an “Experience Break,” originally included in *Psychology and Life*, 15th Edition, by Philip Zimbardo and Richard Gerrig.)

Based only on the descriptions provided in the grid below, ask your class to guess which pairs of the people listed below belong together. There is no right or wrong answer. Tell them to go with their instincts.

Now lead your class in a discussion of their matchmaking decisions with respect to the goals of psychology:

- How would they describe the behaviors they engaged in while trying to settle on appropriate matches?
Did they read all the descriptions before they began? Did they find the decisions easy to make? Did they change their mind several times?
- How would they explain their behavior?
What rules do they believe they used to match up the couples? Were they most concerned about age? About occupations? About leisure activities? Did they use some combination of all three descriptions? What inferences did they make in their decisions, such as perceived gender? What does the factor(s) that they used most say about them personally and their selection of a partner?
- How might their explanation allow them to predict which real-world relationships would succeed?
- Suppose that based on their day-to-day observations of relationships, they focused on occupations while doing their matchmaking. Are they willing to generalize from the predictions they made on this task to predictions in the real world? Can they begin to imagine the types of research they might carry out to test those predictions?
- Does their explanation allow them to control or improve their own relationship-seeking behavior or to give better advice to others?
Have they learned from this exercise what matters most to them in a relationship? What more would they like to learn from research?

- Could they learn something that would allow them to improve the quality of their own or other people's lives?
- If their research reveals the factors that help determine which relationships, in general, will endure, they should be able to improve the quality of people's lives.

<p>David Age: 21 Job: Car mechanic Enjoys: Gourmet food</p>	<p>Dana Age: 23 Job: Advertising executive Enjoys: Movies</p>
<p>Chris Age: 29 Job: Dog groomer Enjoys: Gardening</p>	<p>Anita Age: 35 Job: Lawyer Enjoys: Roller coasters</p>
<p>Sandy Age: 54 Job: Flight attendant Enjoys: Hang gliding</p>	<p>Karen Age: 18 Job: Sales clerk Enjoys: Art museums</p>
<p>Jamie Age: 20 Job: Secretary Enjoys: Football</p>	<p>Pat Age: 56 Job: Pediatrician Enjoys: Opera</p>
<p>Tony Age: 37 Job: College professor Enjoys: Comic books</p>	<p>Rahul Age: 22 Job: Store manager Enjoys: Scuba diving</p>

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Activity: Promoting Cultural Awareness

Lani Fujitsubo suggests an exercise that can be used profitably in Introductory Psychology as well as several other courses. Ask students to play the roles of family members and one or two newspaper reporters. The family is a group of aliens from outer space who have arrived on this planet, and the reporters are interviewing them for a story of interest to their readers. Fujitsubo provides the following script for the family member volunteers to rehearse:

“You are a family (mother, father, and child) from outer space whose spacecraft recently landed in the United States. You are doing your best to assimilate into this society and are being interviewed because your child won the local spelling bee. On your planet of origin you show respect by laughing out loud before answering a direct question. Men are not allowed to speak directly to others, and must whisper their requests to women who will then communicate directly. It is traditional to offer a gift or compliment to someone before making a request or asking for anything. If offended you use nonverbal communication to express your hurt feelings, the most common form of which is to briefly turn your back to the person. Apologies are made by briefly dipping your head. No one on your planet is considered more important than anyone else, and competition is an unknown concept. Eye contact with males is considered offensive. A question is usually never answered directly because this implies that someone is an expert and causes others to lose face.”

After the demonstration poll the reporters and family members for their reactions. Reporters often feel frustrated, confused, misunderstood, or helpless in the face of this interaction where they don’t know the “rules.” Family members might also find themselves misunderstood, offended, or frustrated at the inability of the reporter to understand their situation. Class discussion of this activity can focus on the importance of appreciating differences among others and understanding where and how miscommunications might arise.

Fujitsubo, L. C. (1999). The importance of cross-cultural sensitivity in psychology. In L. T. Benjamin, B. F. Nodine, R. M. Ernst, and C. B. Broeker (Eds.), *Activities handbook for the teaching of psychology (Vol. 4)*. Washington, DC: American Psychological Association.

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Activity: Perspectives in Psychology (Group Activity)

For this exercise, students should work in small groups. Each group should take one of the major psychological perspectives discussed in Chapter 1 (psychodynamic, behavioral, humanistic, cognitive, sociocultural, biopsychological and evolutionary). In the first step, using their books and their minds, they are to outline the key figures as well as key terms and concepts on a transparency or poster, in preparation for presenting their perspective to the class. In the second step of this exercise, students are to read a brief case history and analyze the case according to their chosen perspective. The third step is to present their perspective and their analysis to the class.

If you have a small class, you can have each group present its perspective and analysis orally, using transparencies or posters as visual prompts. If you have a large class, you may want to have groups do posters, then group posters on similar perspectives together around the edges of the room. You could then tour around the room and ask a few key questions of students from each group while other students look and listen.

Detailed instructions for this activity are contained in **Handout Master 1.2**. As you wrap up this activity, you may want to reinforce the consideration of perspectives by pointing out to students that they will be revisiting these perspectives throughout the rest of the course.

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Activity: Which Famous Psychologist Am I?

Purpose: Students discuss the major historical figures in psychology

Learning Structure: What's on my back?

Time: Approximately 15 minutes

Class Size: Appropriate for any class size

Description: The purpose of this activity is to familiarize students with the names and contributions of notable psychologists. For this activity, you will need to prepare a sign for each student to wear on their back. As students enter the class, pin or tape a sign to their back with the name of a psychologist covered in the introductory chapter. Make sure that the student doesn't see the name assigned to them. If you have a large class, you may need to give several people the same historical name. After discussing the history of psychology tell students that they are going to have a chance to try and guess the name of the psychologist on their back. Allow a 10-15 minute "mingling" period in which students can move about the room interacting with other students. Students are only allowed to ask questions of others, which can be answered yes or no. For example the students might ask, "Am I a woman?" After hearing the answer, they must move on to a new student to ask their next questions, "Am I associated with functionalism?" or "Was I the first woman to receive a doctoral degree in psychology?"

This activity can be modified for large classes. If your room lacks space for "mingling" or you simply have too many students to complete the activity comfortably, you may want to modify this activity by asking for several volunteers. The volunteer students can stand in front of the class and can take turns asking questions of the entire class until they are able to figure out their assigned name.

Marin, A.J. (2011). *Interactive Learning Companion*. Boston: Pearson Education, Inc.

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Activity: Psychologists' Twenty Questions

Play the game, Twenty Questions, with your students to have them try to guess your specialization in psychology. They should be very close to your actual interests by the end of the game. Explain how and why you selected your particular field or specialty in psychology. You might also draw students' attention to the information in Chapter 1 about possible careers for psychology majors. You may also want to mention the need for more minorities and individuals from working class backgrounds in the field, if such information would be appropriate for your students. Encourage them to visit the APA Web site (<http://www.apa.org>) to find out more about psychology careers.

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Activity: Brainstorming Definitions

Purpose: Students examine their image of psychologists

Learning Structure: Roundtable and Focused Listing

Time: Approximately 15 minutes

Class Size: Appropriate for most class sizes

Description: Using the Focused Listing technique, students generate a list of qualities associated with the word “psychologist.” Then, they make a second list of words associated with the definition of “scientist.” Using the roundtable format, students share and compare their two lists. Students discuss the common misconceptions of psychologists as “therapists” only. The instructor may ask teams to share their lists with the class.

Marin, A.J. (2011). *Interactive Learning Companion*. Boston: Pearson Education, Inc.

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Activity: Are Psychologists Scientists?

Before introducing students to the various subfields of psychology, make the point that all psychologists, regardless of their area of expertise, are indeed scientists. This brief exercise (adapted from Smith, 1982) also illustrates students’ stereotypical view of psychologists as clinicians. First, write the word “psychologist” on the board and ask students to describe some characteristics and traits of the typical psychologist. With encouragement to freely answer with any words or images that come to mind, the following responses frequently come up: caring, patient, warm, lying on a couch, soothing, good listener, giving advice, etc. After erasing these responses, write the word “scientist” on the board and ask students to do the same for the typical scientist. Their responses clearly indicate that their perceptions of “scientists” (which include traits like analytical, brilliant, and achieving, and images of conducting research and wearing lab coats and pocket protectors) are markedly different from their perceptions of “psychologists.” Near the end of the exercise, a few students will invariably catch on and ask, “But aren’t psychologists scientists?” which leads the class into a discussion of why their perceptions are so divergent. By this time, the idea that psychologists are *scientists* that study the mind and behavior rather than genes, chemicals, or subatomic particles makes perfect sense, and I can then describe cognitive psychologists as *scientists* who study human mental processes, developmental psychologists as *scientists* who study changes in capacities throughout the lifespan, and so on.

Smith, G. (1982). Introducing psychology majors to clinical bias through the adjective generation technique. *Teaching of Psychology*, 9, 238–239.

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Activity: Can Science Answer This Question?

Students are asked to identify whether specific questions can be addressed using the methods of science. The student handout is included as **Handout Master 1.3**. This is a good exercise to follow-up to the **How Do We Know What We Know? Lecture Launcher and Discussion Topic** in this chapter. Suggested answers and explanations are listed below.

1. No. The question as stated is vague and the terms are not defined. What does “bad” mean? (Good and bad are value judgments.) Who or what is “society”? Bad for whom? However, specific correlates and consequences of abortion can be studied.
2. Yes. The independent variable would be “before or after eating” and the dependent variable would be talkativeness, which could be operationally defined (e.g., as the length of replies to questions).

3. Yes, so long as the variables are operationally defined. The independent variable would be jogging versus not jogging (or perhaps the frequency or duration of jogging); the dependent variable would be some measure of mental attitude, such as scores on a psychological test.
4. Yes. This question requires only the computation of a correlation between doctors' GPAs in medical school and their subsequent incomes. Such variables as "years in practice" would have to be controlled and a representative sample would have to be selected.
5. No, probably not; it would be a little like comparing apples and oranges. Physiological measures of emotional strength would not be useful because there is not always a relationship between physiological arousal and subjective experience, and because love tends to be a more enduring emotion than anger.
6. Yes. The independent variable would be "bottle-fed versus breast-fed." The dependent variable would be alertness, which would have to be operationally defined in behavioral terms. If babies were randomly assigned to the two groups, the study would be an experiment. If the researcher used babies whose mothers had already made the decision about feeding method, the study would be correlational, and inferences about cause and effect could not be made.
7. No. "Moral" is a broad, vague term that means different things to different people. Moreover, many unanticipated economic, political, and social developments could affect the outcome. Even if "moral" could be defined adequately, and projections from current trends and conditions could be made, the results might turn out to be meaningless, because definitions of morality change over time. What is "moral" in the 1990s might not be moral in 2020, and vice versa.
8. No. The subjects would be very uncooperative!

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Activity: Experimental Design

The overarching goals of the following exercise are to demonstrate how psychology and the scientific method can be used to address issues that interest your students, to teach them how the concepts they are learning influence experimental design, and to impress on them an appreciation for the challenges faced by experimental psychologists. Lead your class through the process of designing an experiment. Start with a hypothesis generated through brainstorming by the class. Allowing your students to provide the hypothesis ensures that it will interest them and that they will stay engaged. Students may start with topics such as alien abduction, crop circles, and the Loch Ness monster. Welcome this, as it gives you a terrific opportunity to talk about alternative explanations, existence proofs, and the fact that some topics, such as the proof of the existence of God, remain firmly outside the boundaries of science. The scientific method is not a panacea; it is a highly structured method for testing measurable factors and relationships. After your class has agreed on an issue to test, lead them toward a consensus and a testable hypothesis about the issue. Once your class has clearly defined a hypothesis, lead them through a discussion of possible alternative explanations. Challenge their hypothesis and their beliefs. Are there other possible explanations that are simpler and more likely? What assumptions and possible biases underlie their hypothesis? How would the hypothesis (and their assumptions and biases) generated by your class be different than explanations put forward by people from different cultures and different times? You might want to mention that spirit possession was a widely held explanation for mental illness until relatively recently. After listing a number of possible alternative explanations, allow your class to suggest a very basic methodology for testing the hypothesis and eliminating the alternative explanations. You might want to give them a head start by suggesting the kind of data that they would need to collect to measure the variables of interest. Depending on the hypothesis chosen and the sophistication of your class, outlining a reasonable experiment may be a difficult process. If the class begins to show signs of

overload, you can quickly switch gears and use the exercise to demonstrate the difficulty in designing and executing well-controlled experiments.

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Activity: Observational Research in the Dining Hall

Koschmann and Wesp (2001) provide several research activities for observational research, correlational research, and experimental research. One way to introduce students to research methods is to allow them to become more cognizant of their everyday surroundings and fellow classmates' behaviors. Koschmann and Wesp suggest that the college or university dining hall is an excellent "laboratory" to observe human behavior. Merely ask students to observe others during meals in the cafeteria, such as seat selection or food choices. You might encourage student research teams to decide which behaviors they wish to observe. Ask students to record their observations, maintain confidentiality, and "debrief" anyone who asked them what they were doing. During the next scheduled class, ask students to share their findings and to generate discussion about potential hypotheses that may provide a better understanding of the behaviors they observed.

Koschmann, N. & Wesp, R. (2001). Using a dining facility as an introductory psychology research laboratory. *Teaching of Psychology*, 28, 105–108.

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Activity: Naturalistic Observation

Objective: To collect data on spatial relationships

Materials: None

Procedure: Assign students to small groups of four or five individuals. Ask each to collect data on personal space in two distinct social situations, perhaps the student union building or other public areas on campus and a situation such as a party, a bar, or another area where individuals are talking. Ask the students to estimate the distance that individuals stand apart when they talk in this public area, noting any differences between same sex and opposite sex individuals. Encourage students to be creative in their data collection; for example, they could approach the participants with a yardstick, or they could count the number of tiles on the floor. Students will come up with their own ideas on the best methods of data collection. When students bring their data to class, summarize each group's findings in terms of the mean distances individuals stand apart while talking and put the results on the overhead or chalkboard. Break out the data by sex and situation. Discuss any problems the students encountered with this type of data collection.

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Activity: Psychology and Social Problems

Purpose: Students identify and observe psychology in the news. Specifically, students investigate the role of psychology in addressing social problems.

Learning Structure: Jigsaw and Group Investigation

Time: Approximately 20 minutes

Description: Students are divided into teams of four, and each student is assigned to a category of social problems. Some examples are presented here:

- changes in the workplace
- new genetic knowledge
- deteriorating social conditions
- urban strife

Give each student a newspaper or section of a newspaper (or have them bring one to class). Have them look for specific articles or examples of their subtopic. Have students report back to their group. How many articles did they find? Students may be surprised at how many articles would be of interest to psychologists. Do any of the articles present empirical information? This is a good exercise to show how psychology can be used to address personal and societal problems. How do you think current events influence what psychologists choose to study?

Marin, A.J. (2011). *Interactive Learning Companion*. Boston: Pearson Education, Inc.

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Activity: Understanding Correlations

This exercise on correlations can be used as a classroom demonstration or as a take-home assignment following a lecture on the nature and uses of correlations. The student handout for this exercise is included as **Handout Master 1.4**. Suggested answers are provided below; however, there are other reasonable explanations.

1. *Positive*. Mutual influence. Similar life experiences.
2. *Negative*. Orphanage environment has an adverse effect on cognitive development. Intelligent children are more likely to be adopted.
3. *Positive*. Violent pornography stimulates violent behavior. Both the violent crime and the number of stores are related to the size of cities. Violent criminals are attracted to violent pornography.
4. *Negative*. Absent students miss pearls of wisdom from the mouth of the instructor. Students with jobs or other responsibilities find it difficult both to get to class and to find time to study.
5. *Positive*. The money appropriated to control crime was poorly spent. The city grew during the eight years, resulting in more crime and more tax revenues.
6. *Positive*. Both variables are related to socioeconomic factors; children from affluent homes have both intellectual and physical advantages over children from substandard home environments. Age is the third variable that accounts for scores on both variables; older children have bigger vocabularies and are also stronger and better coordinated.

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Activity: Correlational and Experimental Research

Many students have difficulty understanding the difference between correlational research and experimental research. It might be useful to walk the class through an example where both kinds of research are illustrated with the same variables. Two examples that could be used this way are the relationship between violent television viewing and aggression, and the relationship between similarity and liking. In both examples either variable could plausibly be caused by the other (or by some third factor); so the step up from correlational to experimental research, where causality can be determined, can be seen as useful. Spend some time discussing how psychologists must be ingenious to turn concepts such as “liking” into measurable variables (this will help students appreciate the scientific process). As examples, you can present actual studies that have been done in these two areas. Byrne (1971) discusses extensive research on the influence of similarity on attraction, and Liebert and Sprafkin (1988) discuss the effects of television on children.

Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.

Liebert, R., & Sprafkin, J. (1988). *The early window: Effects of television on children and youth*. New York: Pergamon Press.

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Activity: Quiz on Correlation

Purpose: Students identify positive and negative correlation. Instructors assess how well students understand the difference between positive and negative correlation.

Learning Structure: Visible Quiz

Time: 5-10 minutes

Class Size: Appropriate for most class sizes

Description: Using the visible quiz technique, instructors ask students to write the word *positive correlation* on one side of a piece of paper, and *negative correlation* on the other. The instructor reads a list of prepared examples of correlations such as the following:

1. The more I eat, the more I weigh
2. The more time I spend at the mall, the less money I have
3. The more I brush my teeth, the fewer cavities I have
4. The less I study, the poorer my grades

After the instructor reads an item, students indicate by holding up their paper whether it's an example of positive or negative correlation. This activity can reinforce lecture material on correlation, but also allows instructors to assess how well students understand correlation.

Marin, A.J. (2011). *Interactive Learning Companion*. Boston: Pearson Education, Inc.

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Activity: Testing Random Assignment (Group Activity)

Students are often distrustful of random assignment, thinking that the people with the best memory or the worst sense of smell will all end up in the same group and make the results of research undependable. This demonstration is designed to show that random assignment does produce equivalent groups.

Provide students with small cards and have them record their height in inches on the card. If the class is small, ask them to record the height of their best friend on a second card. Collect the cards and then randomly assign them to several groups of 20. Have students calculate means for the groups.

The means should be quite close, illustrating that random assignment has produced equivalent groups. You might also explain that random assignment is not infallible and can be a source of experimental error.

This activity can be extended by using groups of different sizes, such as 2, 5, 10, 20, and 50, to show that the probability of getting groups that are not equivalent decreases as group size increases.

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Activity: Small Samples

Objective: To discover if small samples can really be representative

Materials: A coin, copies of the chart in **Handout Master 1.5**

Procedure: Sometimes students have a hard time believing that 1,000 people or so can represent the entire population of the United States. This activity will help them see that small samples can be representative. Divide students into small groups and instruct them as follows:

Point out to students that, as n gets bigger, the more balanced the percentage of heads and tails becomes. However, they should notice too that $n=20$ isn't much better than $n=15$. And it took a lot longer to collect 5 samples of 20 coin tosses each. In other words, there wasn't much gain in representativeness for the extra cost in time and energy. So, small samples can be representative, and increasing the size of a sample doesn't always pay off when costs are balanced against benefits.

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Activity: Which Method Would You Use?

The following examples can be used to generate a class discussion on the research methods used by psychologists. Write the methods on the board: case histories, naturalistic observation, laboratory observation, surveys, tests, correlational studies, and experiments. Then, for each situation, ask students to decide which method is appropriate and briefly describe why.

1. Determining the favorite food of adolescents.

Method: Survey

Explanation: Adolescents constitute a large population and the information sought should be accessible through questionnaires or interviews. Care will be needed to construct a sample that is representative of the population under consideration.

2. Determining whether a person is introverted or extroverted.

Method: Psychological test

Explanation: The goal is to measure psychological qualities within an individual. Other methods (e.g., case history, naturalistic observation) might be employed, but they are more time-consuming and do not offer the degree of standardization, reliability, and validity found in a well-constructed test.

3. Determining if frustration causes aggression.

Method: Experiment

Explanation: Cause-and-effect information is being sought. In science this information is obtained through experimentation in which the proposed causal variable is manipulated under controlled conditions.

4. Determining if level of education is associated with crime.

Method: Correlation

Explanation: This technique is used to determine if and how strongly two variables are related. Establishing that a correlation exists, however, does not address the problem of why two things are related.

5. Determining how teenagers behave on their first date.

Method: Naturalistic observation

Explanation: A description of behavior as it occurs in a real-life situation is being sought. Making the observations without arousing suspicion in subjects could be problematic, and the investigator will need to be careful to prevent “guinea-pig” reaction.

6. Determining the behavior of subjects who are anxious about participating in research.

Method: Laboratory observation

Explanation: The goal here can be readily achieved within an environment artificially set up by the experimenter. The advantage of this approach is that the investigator has greater control over the situation being studied.

7. Determining why a housewife gave up a flourishing career.

Method: Case history

Explanation: Making this determination requires in-depth information about the way a variety of psychological factors, expectations, values, motives, past experiences, and so forth, blend together within the person. This kind of information is unique to the person and could not be assessed through standardized tests.

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Activity: Name That Research Method

In this exercise, students are asked to match brief descriptions of research with the name of the method being used. Copy **Handout Master 1.6** and distribute to students as a basis for this exercise.

Answers: 1-c, 2-a, 3-e, 4-f, 5-d, 6-b.

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Activity: Using Memory to Demonstrate Methodology

This demonstration introduces the concept of the experimental method; however, it is equally applicable to the material in the memory chapter. Students are given the question “Can we improve memory by using a mnemonic technique?” and are asked to design an experiment to test the hypothesis. The experiment is then conducted using procedures summarized below. Through this procedure, students are guided through a typical psychological experiment and are introduced to the concepts of independent variable, dependent variable, experimental and control groups, and control procedures.

Prepare a mnemonic technique and write it on small slips of paper to hand to some of the students (half of the class). Construct a list of common words to use in conjunction with the mnemonic. Here is one of many mnemonic techniques:

PRESIDENTIAL

Word List: Pet, Road, Eagle, Screen, Ink, Dog, Envelope, Number, Target, Income, Alley, Library

Begin a discussion of the experimental method by asking for definitions of a hypothesis. After discussing the students’ definitions tell them that they are going to conduct an experiment in class and provide them with the question above as the hypothesis. After defining mnemonic techniques, inform the class that you have a mnemonic technique but need to know how to proceed from this point. Students are asked for input as to how to test the hypothesis. Usually someone proposes that the class be divided into two groups: one that receives the mnemonic and one that does not. Ask how the students should be assigned to each group. This leads us to a discussion of random assignment.

The experiment begins by passing out the slips of paper with the mnemonic to the “experimental” group. All students are then given the following instructions: “I am going to read a list of words; when I’m finished I want you to recall as many words as you can IN THE SAME ORDER AS THEY WERE READ.” Tell the experimental group how to use the mnemonic: “The letters of the word correspond to the first letter of each word in the list, so you can use the word to help you remember the order of the words in the list.”

Read the list of words, pausing about 4 seconds between words. Then tell the students to write down as many words as they can remember in the same sequence as they were read. Allow about three minutes of recall time, then ask the students to correct their own paper and tabulate the results on the board. This demonstration typically yields a large difference between the two groups. If desired, you can initiate a discussion of statistical inference and perhaps conduct some preliminary analyses. Discuss how the results pertain to the original hypothesis.

Adapted from Davis, S. F., & Palladino, J. J. (1994) *Interactions: A newsletter to accompany Psychology, 1*(Win), 1.

- **Return to Lecture Guide: Psychology: The Scientific Methodology**
 ◄ **Return to complete list of Classroom Activities, Demonstrations, and Exercises for Chapter 1**
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Activity: Give the Doctor Some Advice

This exercise describes research on the effects of drinking and driving. However, this study is flawed and students are asked to suggest ways to correct the errors. Copy **Handout Master 1.7** and distribute to students as a basis for this exercise.

Suggested answers:

1. e
2. Possible confounding variables:
 - a. The vodka and the placebo should be mixed in equal amounts of orange juice.
 - b. Subjects should be chosen randomly and also assigned randomly to the different groups. (The same amount of alcohol affects males and females differently.)
 - c. The researcher should not select friends, colleagues, or his own students as the subjects for this research, or any research, because of possible experimenter expectancy and demand characteristics.
 - d. The subjects should participate at the same time of day since their last meal can determine how potent the effects of alcohol can be.
 - e. Informed consent should be obtained before the research, not after.Given these many possible confounding variables, Dr. Moesteller should be more cautious in his conclusions.

► **Return to Lecture Guide: Ethics of Psychological Research**

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Activity: Wonder Horse Dials 911 to Save Boy's Life

Jane Halonen suggests a fun class exercise that tests students' understanding of experimental methodology principles. Once you have covered the basics of correlation, experimentation, and causal inference, challenge your students to apply these principles by examining the outrageous claims made in tabloid headlines, many of which imply a causal relationship (e.g., dreaming in black-and-white improves your sex life; garlic diet improves memory...but not breath; large gopher presence precedes volcano eruptions). For this exercise, bring in a variety of headlines from the *Star*, *National Enquirer*, *Weekly World News*, *Globe*, etc. that are psychology-related and causal-sounding (or ask students to bring in examples). Challenge students to design simple studies that will accurately test whether or not the relationship claimed in the headline is a valid one. Halonen reports that students enjoy the opportunity to "think like scientists" in response to humorous and outrageous claims and that this exercise helps stimulate them to scrutinize causal claims from all sources and to design experiments more carefully and creatively (and, if that isn't enough, they can practice their newfound skills in line at the grocery store)!

Halonen, J. S. (1986). *Teaching critical thinking in psychology*. Milwaukee: Alverno Productions.

► **Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking**

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Activity: Softens Hands While You Do Dishes

A variation of the tabloid exercise suggested above encourages students to apply experimental principles to claims they are bombarded with on a daily basis—television and magazine advertising. For this exercise, bring in (or have your students bring in) samples of advertising and have students critique the product claims of success according to principles of experimental methodology. Ads can be critiqued on several grounds, including the problem of personal testimony as unreliable, the absence of a control or comparison group, the presence of extraneous variables, the presence of plausible alternative explanations, unclear or undefined variables, and a lack of supporting statistics. Jane Halonen reports that students become enthusiastic about the usually dreaded topic of experimental methodology when they realize it has the potential to make them smarter consumers.

Halonen, J. S. (1986). *Teaching critical thinking in psychology*. Milwaukee: Alverno Productions.

► **Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking**

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Activity: Critical Thinking

Purpose: Students complete a brief one-minute assignment that involves critical thinking, personalizing, or deeper processing of information

Learning Structure: Ticket-In/One-Minute Papers

Time: 1-5 minutes

Class Size: Appropriate for any class size

Description: Students are given a couple minutes to answer a question posed by the instructor. These assignments can be used in a variety of ways – to verify attendance, to start discussion, to assess student knowledge, and to provide opportunities for critical thinking. Sample assignments are provided below:

1. **Psychological Perspectives.** Provide students with a scenario for a fictional person (e.g., “Mary is extremely underweight. She often refuses to eat and her parents fear that she may be anorexic.”) and ask students to generate possible explanations for her behavior. Their responses will generally reflect aspects of the major perspectives in psychology -- cognitive, psychodynamic, behavioral, sociocultural, neuroscience, humanistic. You may choose to use some of these ticket-in responses to illustrate the different perspectives.
2. **Psychology in the Movies.** Have students identify a popular movie that attempts to investigate or explain human behavior. Use their responses to illustrate the major psychological perspectives in action, and to explain the behavior of the character(s) in the movie. For example, in *Total Recall*, Arnold Schwarzenegger alters his behavior as a result of a memory implant procedure (neuroscience perspective).
3. **Pop-Psychology.** Ask students if they have ever read a self-help book, or listened to a radio show or watched a talk show with a guest psychologist. Did the psychologist have good advice? Did they discuss any research findings? This exercise can segue into a discussion of pop-psychology and the importance of empirical findings in separating science from psychology used for entertainment.

4. **Generate Research Questions.** After presenting the major research subfields in psychology -- clinical, social, developmental, experimental, personality, etc., ask students to generate some research questions and identify which type of psychologist would be most likely to study this question. Some research questions would be of interest to more than one type of psychologist. Why might this be so?
5. **Create your own perspective.** After presenting the contemporary approaches to psychology, ask students to create their own perspective of human behavior. They may include aspects of the perspectives outlined in the book, or may include their own ideas.

Marin, A.J. (2011). *Interactive Learning Companion*. Boston: Pearson Education, Inc.

► **Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking**

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Activity: Introducing Controversies in Introductory Psychology Classes

Purpose: Students think critically about controversial topics in psychology

Learning Structure: Valley of Values/Value Line/Value Signs

Time: Approximately 15 minutes

Class Size: Appropriate for any class size

Description: Using one of the learning structures for controversies – Corners, Structured Controversy, Valley of Values, Value Signs, or Value Lines, the instructor poses controversial questions to the class. Students share their answers and contribute to further class discussion. Here are some controversies from introduction to psychology:

- Our behaviors are a result of free will
- The mind and body are two separate things
- Heredity is more important in determining behavior than the environment
- Principles of behavior are universal (as opposed to culture-specific)
- Science is the best way to learn about human behavior

Marin, A.J. (2011). *Interactive Learning Companion*. Boston: Pearson Education, Inc.

► **Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking**

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Activity: Critical Thinking

Many instructors look for new ways to incorporate critical thinking into the classroom. The sample syllabus, addendum (see **Handout Master 1.8a**) and rubric for grading (see **Handout Master 1.8b**) were produced by Dr. James Oliver at Henry Ford Community College. The materials provide a sample of how to incorporate a critical thinking assignment in an introductory psychology class.

► Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

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Activity: Crossword Puzzle

Copy and distribute **Handout Master 1.9** to students as a homework or in-class review assignment.

Answers for the Crossword puzzle:

Across

4. the phenomenon in which the expectations of the participants in a study can influence their behavior.

placebo

5. the theory and therapy based on the work of Sigmund Freud. **psychoanalysis**

7. tendency of observers to see what they expect to see. **bias**

10. process of assigning subjects to the experimental or control groups randomly, so that each subject has an equal chance of being in either group. **random**

11. the scientific study of behavior and mental processes. **psychology**

12. tentative explanation of a phenomenon based on observations. **hypothesis**

14. a professional with an academic degree and specialized training in one or more areas of psychology.

psychologist

15. early perspective in psychology associated with Wilhelm Wundt and Edward Titchener, in which the focus of study is the structure or basic elements of the mind. **structuralism**

16. in research, repeating a study or experiment to see if the same results will be obtained in an effort to demonstrate reliability of results. **replicate**

17. the entire group of people or animals in which the researcher is interested. **population**

18. a deliberate manipulation of a variable to see if corresponding changes in behavior result, allowing the determination of cause and effect relationships. **experiment**

Down

1. a measure of the relationship between two variables. **correlation**

2. thinking and making reasoned judgments about claims. **critical**

3. early perspective in psychology associated with William James, in which the focus of study is how the mind allows people to adapt, live, work, and play. **functionalism**

6. the process of examining and measuring one's own thoughts and mental activities. **introspection**

8. method system of gathering data so that bias and error in measurement are reduced. **scientific**

9. a medical doctor who has specialized in the diagnosis and treatment of psychological disorders.

psychiatrist

13. perspective that focuses on the relationship between social behavior and culture. **sociocultural**

► Return to Lecture Guide: Chapter Summary

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Activity: Fill-in-the-Blanks

Copy and distribute **Handout Master 1.10** to students as a homework or in-class review assignment.

Answers for Fill-in-the-Blanks—Chapter 1

1. behaviorism
2. functionalism
3. structuralism
4. psychology
5. description, explanation, control, prediction
6. theory
7. gestalt
8. psychoanalysis
9. humanism
10. cognitive
11. scientific method
12. hypothesis
13. naturalistic observation
14. surveys
15. ethics
16. pseudopsychology
17. experimenter
18. correlation
19. evolutionary
20. psychologist
21. biopsychological
22. experiment

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▼ **HANDOUT MASTERS**

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- [Handout Master 1.2 Perspectives in Psychology](#)
- [Handout Master 1.3 Can Science Answer This Question?](#)
- [Handout Master 1.4 Understanding Correlations](#)
- [Handout Master 1.5 Small Samples](#)
- [Handout Master 1.6 Name That Research Method](#)
- [Handout Master 1.7 Give the Doctor Some Advice](#)
- [Handout Master 1.8a Critical Thinking: Sample Syllabi](#)
- [Handout Master 1.8b Critical Thinking: Rubric](#)
- [Handout Master 1.9 Crossword Puzzle](#)
- [Handout Master 1.10 Fill-in-the-Blanks](#)

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Handout Master 1.1
Knowledge of Psychology Test

Instructions: Read each item carefully and then circle whether you believe the statement to be true or false.

- T F 1. To change people's behavior toward members of ethnic minority groups, we must first change their attitudes.
- T F 2. By feeling people's faces, blind people can visualize how they look in their minds.
- T F 3. Children memorize much more easily than adults.
- T F 4. Unlike humans, the lower animals are motivated only by their bodily needs—hunger, thirst, sex, etc.
- T F 5. "The study of the mind" is the best brief definition of psychology today.
- T F 6. The more you memorize by rote (e.g., poems), the better you will become at memorizing.
- T F 7. The best way to ensure that a desired behavior will persist after training is completed is to reward the behavior every single time it occurs throughout training (rather than intermittently).
- T F 8. Fortunately for babies, human beings have a strong maternal instinct.
- T F 9. The ability of blind people to avoid obstacles is due to a special sense that develops in compensation for their absence of vision.
- T F 10. By giving a young baby lots of extra stimulation (e.g., mobiles and musical toys), we can markedly increase its intelligence.
- T F 11. Psychiatrists are defined as medical people who use psychoanalysis.
- T F 12. Boys and girls exhibit no behavioral differences until environmental influences begin to produce such differences.
- T F 13. The high correlation between cigarette smoking and lung cancer proves that smoking causes lung cancer.
- T F 14. Genius is akin to insanity.
- T F 15. In love and friendship, more often than not, opposites attract one another.

Reprinted with permission from R. A. Griggs and S. E. Ransdell (1987), *Misconceptions Tests or Misconceived Tests?*, *Teaching of Psychology*, 14, 210–214. Copyright 1987 by Lawrence Erlbaum Associates, Inc.

► **Return to Activity: Misconceptions About Psychology**

◄ **Return to complete list of Handout Masters for Chapter 1**

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Handout Master 1.2 Perspectives in Psychology

Step 1.

Pick one of the perspectives listed below. Each group, working together, is responsible for teaching the class about its viewpoint. Prepare a transparency or poster that summarizes the important points about your theory. Be sure to include the **names** of people who were most important in developing your theory and **key terms** and **concepts** associated with your theory. Be prepared to present your theory to the class.

Biological

Learning

Cognitive

Sociocultural

Psychodynamic

Step 2.

Read the following case history. Working with your group, decide how a psychologist using your perspective would explain the CAUSE of Andrea's problem. *Do not rely on common sense and intuition in discussing this case. Imagine that you are a dyed-in-the-wool advocate of this particular viewpoint and make your arguments from that point of view.* Write your ideas on your transparency or poster and be prepared to present them to the whole class.

Andrea is a 19-year-old college student. She has requested counseling from her college counseling center at the urging of her friends. Andrea's friends believe that she may have an eating disorder. Andrea sees herself as fat, but to her friends she is startlingly thin. In fact, she is so thin that they are afraid that she will become seriously ill. Andrea maintains this low weight mainly by eating practically nothing and drinking two quarts of water a day. She says that she thinks about food "all the time" when she is restricting her food intake, but that she does not want to eat because she is afraid of getting fat. At other times, however, her hunger is so intense that she feels like she has to give in to the cravings. At those times she "binges" and eats huge amounts of food. For example, she once ate a half gallon of ice cream in a little over one hour. After her "binges" she works to get rid of the excess calories she has consumed by vomiting. She says she is starting to agree that she may have an eating problem. After interviewing Andrea, you are convinced that she meets criteria for a diagnoses of both anorexia and bulimia.

You are also interested in obtaining some background information about Andrea, to aid in understanding her. You find out that Andrea is 19 years old and a freshman at your college. She says that she started really worrying about her weight two years ago, when she was a junior in high school. At that time her parents were quarreling a lot and had even talked about divorce. She says that managing her eating made her feel more in control. She also noticed that, even though she still felt fat, people seemed to pay more attention to her and to respond to her better as she got thinner. She indicates that she likes having a more "boyish," more athletic figure.

Step 3.

Present your perspective and your analysis of the case history to the class.

► **Return to Activity: Perspectives in Psychology**

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Handout Master 1.3
Can Science Answer This Question?

Psychology is an empirical science; that is, its knowledge is obtained through observation, experimentation, and measurement. Some questions cannot be answered empirically and are, therefore, outside the realm of science.

Decide whether scientific research can answer the questions below and respond “yes” or “no” to each question. Do not try to answer the question itself. Just say whether or not scientific research can, in principle, address the question. Briefly explain why each question is, or is not, a good candidate for scientific inquiry.

For the questions that can be studied scientifically, identify what the independent and dependent variables would be in the experiment.

1. Is abortion on demand bad for society?
2. Do people talk more after they have eaten than they do when they are hungry?
3. Does jogging lead to a positive mental attitude?
4. Are the incomes of doctors related to the grades they make in medical school?
5. Which emotion is stronger, love or anger?
6. Are breast-fed babies more alert than bottle-fed babies?
7. Will people be more moral in the year 2020 than they are now?
8. Are people who commit suicide sorry after they have done it?

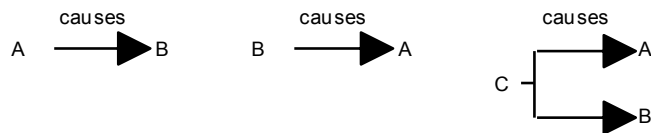
► Return to Activity: Can Science Answer this Question?
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Handout Master 1.4 Understanding Correlations

Correlational studies show relationships between variables. If high scores on one variable predict high scores on the other variable, the correlation is *positive*. If high scores on one variable predict low scores on the other variable, the correlation is *negative*.



Showing that two variables are related does not justify claiming that a causal relationship exists. There may be a causal relationship, but other explanations usually exist. For example, the variables may be related because both have a causal relationship with a third variable.



For each of the correlational studies described below, decide whether the correlation is positive or negative and give two alternative explanations for each finding.

1. A study of married couples showed that the longer they had been married, the more similar their opinions on social and political issues were.
Positive or negative?

Explanation 1:

Explanation 2:

2. An intelligence test was given to all the children in an orphanage. The results showed that the longer children had lived in the orphanage, the lower their IQ scores.
Positive or negative?

Explanation 1:

Explanation 2:

3. In a study of American cities, a relationship was found between the number of violent crimes and the number of stores selling violence-depicting pornography.
Positive or negative?

Explanation 1:

Explanation 2:

4. A college professor found that the more class absences students have, the lower their grade in the course tends to be.
Positive or negative?

Explanation 1:

Explanation 2:

5. A politician running against a candidate who had been in office for eight years pointed out that violent crime had increased steadily during those eight years even though the administration appropriated more and more money to fight crime.
Positive or negative?

Explanation 1:

Explanation 2:

6. It was found that elementary-school children who made high scores on a vocabulary test also tended to make high scores on a test of physical strength and muscular coordination.
Positive or negative?

Explanation 1:

Explanation 2:

► Return to Activity: Understanding Correlations

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Handout Master 1.5
Small Samples

You probably know that when you flip a coin, the chance of getting a head or a tail is 50%. But this probability is based on an infinite number of coin tosses. But how well does tossing the coin twice represent the whole population of tosses, or the infinite number of tosses? If a sample of 2 tosses, or $n=2$ as a statistician would express it, doesn't represent the population, what about a sample of 5 or 10 or 15 or 20? To answer these questions, you have to take repeated samples of the same size. Toss a coin twice ($n=2$), and then write the number of heads and tails in the column labeled #1. Repeat the process four more times, recording your results the second time under #2, the third time under #3 and so on until you have a total of five samples each of which consists of two coin tosses. When the $n=2$ row is completely filled in, calculate the overall percentage of heads and tails. Now use the same process to collect data on samples of $n=5$, $n=10$, $n=15$, and $n=20$.

Sample size	Toss #1		Toss #2		Toss #3		Toss #4		Toss #5		Overall %	
	H	T	H	T	H	T	H	T	H	T	H	T
$n=2$												
$n=5$												
$n=10$												
$n=15$												
$n=20$												

► [Return to Activity: Small Samples](#)

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Handout Master 1.6
Name That Research Method

Here are the major research methods used by psychologists. Match each with one of the following examples of research.

- a. case history
 - b. naturalistic observation
 - c. laboratory observation
 - d. survey
 - e. psychological tests
 - f. experiment
1. Frank is a full professor who is interested in the factors that affect the performance of rats who are learning to find their way through a complex maze. Every afternoon he gives each of his 50 rats ten trials in the maze, counting the number of wrong turns each rat makes on its way through the maze.
 2. Ben is counseling with Fennimore Jones in a small room in the neuropsychiatric hospital. Ben is a graduate student in clinical psychology and Fennimore is his client. Fennimore was admitted to the neuropsychiatric hospital when he came to the student health clinic complaining that he hears voices shouting obscenities at him, and confiding that he thinks he is going through a spontaneous sex change. After each session with Fennimore, Ben writes a report describing Fennimore's verbal and nonverbal behavior and his interpretations of the behavior.
 3. Carl is a graduate student who plans to become a psychometrician. He, like Ben, is working at the neuropsychiatric hospital. His job is to administer a battery of tests to new patients. He will send the test results, along with his summary and interpretation of them, to the patient's clinical psychologist or psychiatrist.
 4. Ada is testing the hypothesis that color preference can be influenced by associating a color with a pleasant experience, such as eating. This afternoon she is delivering a supply of red, yellow, blue, green, and white nursing bottles to the mothers of newborns who have consented to let their infants be subjects in her research.
 5. Dee is an assistant professor who will teach introductory psychology for the first time next term. She has chosen some films to show to her class of more than 200 students, and is now preparing a questionnaire to administer to her students after each film. She thinks getting student reactions to the films will be helpful next time she teaches the class.
 6. Ed is an undergraduate psychology major. For his senior thesis he is investigating the nature of the audience for pornography. This afternoon he is sitting in his car across the street from one of the pornographic bookstores in the area. He is taking notes on the sex, approximate age, and ethnicity of the patrons as they enter and leave the store.

► **Return to Activity: Name That Research Method**

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Handout Master 1.7
Give the Doctor Some Advice

Dr. Moesteller has long been interested in the effects of alcohol on human behavior. His latest experiment involved giving college students one of three kinds of drinks:

- 3 oz. of 100 proof vodka mixed with a standard size glass of orange juice,
- 2 oz. of 100 proof vodka mixed with a small glass of orange juice, or
- 3 oz. of a nonalcoholic but vodka-flavored substance mixed with a standard size glass of orange juice.

Dr. Moesteller recruited some of his subjects from the school's track team, which was easy because he is the assistant coach. He recruited the rest of his subjects from his introductory psychology class. Dr. Moesteller assigned the women on the track team to the 2 oz. vodka group, the men from his class to the 3 oz. vodka group, and the women from his class to the nonalcoholic group.

The women on the track team participated right after they finished practicing, and students from his class participated at various times during the day. After each group had a chance to drink the beverage, he had them sit in an automobile simulator where their task was to step on the brake every time they saw a red light.

Much to his surprise, the 2 oz. group showed slower reaction times to the red light than the 3 oz. group. The nonalcoholic group was the quickest to react. As soon as the experiment was over, he explained to the subjects the true purpose of the experiment and had them sign an informed consent form. From his analysis of the results, Dr. Moesteller concluded that drinking alcoholic beverages can slow reaction time for braking in college students who drive after drinking.

1. Based on his experiment, was Dr. Moesteller's conclusion correct?
 - a. No, because he did not randomly select his subjects.
 - b. No, because he knew some of his subjects better than others.
 - c. Yes, because subjects in both experimental groups had slower reaction times than the control group.
 - d. Yes, because his results agree with what we all know from our experience with those who drink and drive.
 - e. No, because there were too many confounding variables in his experiment, including both a and b.
2. On the other side of this page, give Dr. Moesteller some advice on how he might improve his research on drinking.

► **Return to Activity: Give the Doctor Some Advice**

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Handout Master 1.8a
Critical Thinking: Sample Syllabi

SAMPLE SYLLABUS FOR INCLUSION OF CRITICAL THINKING COMPONENT

Introductory Psychology

Syllabus and Course Calendar, Winter Semester, 2011

INSTRUCTOR: James E. Oliver, Ph.D.; **OFFICE:** xxxx **PHONE:** xxx-xxxx

OFFICE HOURS: MWF xxxxxxxx; TR 9xxxx

email: xxxxxxx

COURSE DESCRIPTION

The course description is presented in the current catalog as follows: “Introduces elementary concepts and principles related to the scientific study of behavior and the mental processes of cognition and affective states. Variables examined include the history of psychology, the scientific method, theory, biological foundations, psychological processes related to cognition and affective states, developmental changes over time, and applications related to healthy and unhealthy personalities.” There is no course prerequisite.

TEXT AND MATERIALS

Text: Ciccarelli, Sandra and White, Noland. *Psychology, Third Edition*. Prentice Hall, Upper Saddle River, NJ (current ISBN 0205-83257-1)

Paul, R. and Elder, Linda. *The Thinker’s Guide for Students on How to Study and Learn a Discipline using Critical Thinking Concepts and Tools*. 2003, The Foundation for Critical Thinking, Dillon Beach, CA.

Paul, R. and Elder, Linda. *A Miniature Guide to the Foundations of Analytic Thinking*. 2003. The Foundation for Critical Thinking, Dillon Beach, CA.

Materials: Scripts, exercises or topics will be used as content for essay papers or class assignments. Video will be used to supplement the text. In this regard, a few students indicate a desire to view more video related material than can be presented in class. Two excellent series—one of eight, one-hour tapes entitled “The Brain,” and another of nine, one-hour tapes entitled “The Mind,” may be viewed in the Listening Center in the Library.

The major core course objectives are behavior/performance demonstrations of knowledge in the cognitive and affective domains requiring each student to identify and/or think critically about a representative sample of the facts, concepts, theories and applications of the text content presented in the course calendar below. The specific learning and assessment objectives for each chapter are presented in the text.

Students will write a critical thinking essay following the model presented by Paul and Elder in their many publications. The essay will be based on an exercise requiring each student to make a self-analysis of their three psychological domains in each of five variables related to academic achievement.

ASSESSMENT OF ACADEMIC ACHIEVEMENT

A combination of grades on writing assignments, tests, critical thinking, and the final examination will be used to assess your total class performance.

- A. Chapter Tests—(Maximum Value = 350 points): A multiple choice test will be given the last day, devoted to the study of each of the chapters. Each test will include 15 questions representing the major learning objectives for the current chapter and 12 additional questions from previous chapters. **Your lowest test score will be dropped. If you miss a test, that will be your lowest grade dropped. The maximum value of each test is 25 points. You must provide a scantron answer sheet and a No. 2 pencil.**

A “Makeup” test will be given on the first day of return to class and then only if the reason for absence is excusable. Questions for a makeup test will be computer generated by random selection from the total pool of items in the test bank and will generally be different from those given on the scheduled test date.

- B. Critical Thinking Essay: (Total Maximum Value = 80 points): As described in the addendum to this syllabus, critical thinking and its expression in writing has become a very specific educational objective demanded by those who support our educational institutions by allocation of tax dollars and by those who provide accreditation required for Henry Ford Community College to function as an educational institution.

The critical thinking essay is due XXXXX but may be submitted early. If submitted late, five points will be deducted for each class day of late submission.

- C. Final Examination: (TOTAL MAXIMUM VALUE = 100 POINTS): The final examination will be comprehensive and the same for all students taking this course. One hundred multiple-choice questions will be presented with a maximum value of 100 points. Grades will be curved so the average score of my three classes will be 80.
- D. Final Grade Determination: The final grade will be calculated as a percent of the total available points achieved as follows:

90% or more = A
80–89% = B
70–79% = C
60–69 % = D
59% or less = E

COURSE CALENDAR

Deviation from the calendar presented below is not anticipated in the absence of extenuating circumstances requiring the cancellation of class:

DATES	CHAPTERS AND ASSIGNMENTS
January 9 11, 13, 18, 20	Orientation A. <u>The Science of Psychology:</u> <ol style="list-style-type: none"> 1. Read article, “Why Should We Redefine Instruction.” Read from text, “Introduction” and chapter major concepts, “What Is Psychology?” and “Psychology Then: The History of Psychology.” 2. Read major concepts, “Psychology Now: Modern Perspectives,” and “Types of Psychological Professionals.” 3. Read major concepts, “Psychology: The Science.” 4. Read balance of chapter and begin Paul and Elder “Analytic Thinking.” Complete parallel portions of the Study Guide for the text.
23 25, 27, 30	Critical Thinking: See handout providing specific instructions. B. <u>The Biological Perspective:</u> <ol style="list-style-type: none"> 1. Read text major concepts: “An Overview of the Nervous System” and “The Central Nervous System—The Central Processing Unit.” 2. “The Peripheral Nervous System—Nerves On the Edge” and “Peeking Inside the Brain.” 3. Read balance of chapter and continue with Paul and Elder’s books.
February 1 3, 6, 8	Critical Thinking: See handout providing specific instructions. C. Sensation and Perception
10, 13, 15	D. Consciousness, Sleep, Dreams, Hypnosis, and Drugs
17, 20, 22	E. Learning
24, 27, & March 1	F. Memory
March 3, 13, 15	G. Development Across the Life Span
17, 20, 22	H. Cognition, Thinking, Intelligence, and Language
24, 27, 29	I. Motivation and Emotion
31 & April 3, 5	J. Stress and Health
April 7, 10, 12	K. Theories of Personality
14, 17, 19	L. Psychological Disorders
21, 24, 26	M. Psychological Therapies
28 & May 1	N. Social Psychology

OTHER POLICIES:

- A. Attendance: Attendance policy is presented in the College Catalog. It states, in part, as follows:

“No system of ‘cuts’ operates at Henry Ford Community College. Students are expected to attend all the sessions of the classes for which they are enrolled. Penalties may be imposed, at the discretion of the individual instructor, whenever absence or tardiness has affected the quality of the student’s work. Students, as a matter of courtesy, should explain the reason for an absence to their instructor. Lack of attendance may affect the student’s final grade.”

- B. Withdrawal/Drop: Policy related to Changes in Schedule is presented in the College Catalog. It states, in part,

“...A student may officially drop a class without penalty until the end of the tenth week during the fall and winter semesters and the fifth week during the spring and summer semesters. A DR will be recorded on the student’s transcript. If a student stops attending a class without officially withdrawing from the class, the instructor may record either an E or DR grade.” (Underline added). In accordance with this policy, I will give withdrawals after the tenth week a DRop grade, providing the student’s cumulative grade is passing at the time of withdrawal; a grade of E if the cumulative grade is failing.

- C. Dishonesty: A policy relating specifically to academic dishonesty is presented in the College Catalog. Become familiar with the behaviors that may result in course failure.

ADDENDUM TO THE SYLLABUS: CRITICAL THINKING

INTRODUCTION

Historically, educators have emphasized the importance of critical thinking and have assumed with substantial certitude such thinking was a “natural outcome” of higher education. Today, we not only question the validity of this assumption but also believe teaching and learning can accelerate the frequency and quality of this assumed natural outcome. For this reason, emphasis on critical thinking as a specific learning objective is quite new, and efforts are being made nationally to incorporate it into essentially all formal educational curriculums.

Teaching and learning about critical thinking is a required learning objective in this course. The design for the achievement of this learning objective incorporates three related purposes.

1. The first purpose is learning how to think critically by analyzing and assessing any content, subject or domain.
2. The second purpose is to enable each student to generate and quantify information about the three psychological domains associated with five achievement-related variables. The resource for this purpose is attached as Exhibit A.
3. The third purpose is to apply the learning acquired in fulfilling the first purpose and to acquire personal insight by writing a critical thinking essay as an eight-part assessment of the content generated in fulfilling the second purpose.

Exhibit A is attached as a format for generating the total information or content to be used in writing the critical thinking essay. Part I is designed to enable you to generate observations about your three psychological domains—behavior, cognition and affective states—as they operate in five variables associated with achievement in the academic setting—study, motivation to complete college, selection of a college major and career goal, family responsibility and support, and support from instructors and counselors. Part I is to be summarized quantitatively in Part II, enabling you to assess the relative strengths of the three domains and the five variables.

Psychological Domains: Most introductory texts present the definition of psychology as the “...scientific study of behavior and mental processes.” Behavior is observable in what people do or say. Mental processes include cognition and affective states and can only be inferred by observations of behavior.

- Behavior occurs as a result of interaction of the mind and body and is observable in the threshold actions people take and in the sounds they make.
- Mental processes are divided into two broad categories—cognition and affect.
 - Cognition occurs when the brain and body interact to acquire, store, retrieve and use information acquired from experience with the world. While the mental processes of cognition are not directly observable, they may be inferred from observable behavior.
 - Affective states occur when the brain and body interact to produce feelings, moods and emotions. Affect is also not directly observable, but inferred from behavior.
 - Feeling is activated as a sensation only by the sense of touch. Other feelings are experienced as a broad range of psychological perceptions such as satisfaction, fear, anger, love, joy, guilt, suspicion, uncertainty, or sympathy.

- Mood is used in the study of abnormal behavior to refer to disordered thought of either a depressive or euphoric nature. In our daily lives, we think of mood as atypical of our usual overall feeling tone, such as, "I am having a great/bad day".
- Emotion is produced when feelings activate involuntary changes in the body, enabling it to become more responsive to demands placed on it by a threat to life, or by other physiological or psychological stressors.

It is important to understand the three psychological domains do not operate in isolation. Each is part of a larger system and function both individually and interactively, to provide motivation. For example, someone was motivated to generate this assignment. As it was typed, the principal domain was psychomotor (behavior). Yet, it was completed with feeling (affect) about the content and the rationale for developing it. Further, there was a necessity for knowledge (cognition) related to the subject of critical thinking, to sentence structure, spelling, and punctuation. We infrequently, if ever, function from a single domain. The three interact in some way.

Observations: As you complete Part I, Exhibit A, you are required to think like a researcher. You are to generate information introspectively and describe your most typical behavior, cognition, and affective states related to each of the five achievement-related variables. You will be using the case study method with a sample of one for whom you are the world's expert observer. The following are examples of observations related to each of these domains for the variable "study."

+	–	<u>Behavior</u>
(x)	()	1. For each hour of class, I <u>allocate</u> two hours of time for study.
()	(x)	2. I do not study. I just <u>review summaries</u> before exams.
		<u>Cognition</u>
()	(x)	1. I often <u>think</u> attending college is a waste of time.
(x)	()	2. I <u>remember</u> best when I focus total attention on my study.
		<u>Affect</u>
()	(x)	1. I become <u>depressed</u> when there is too much studying to do.
(x)	()	2. I am <u>enthusiastic</u> about the new ideas presented in my book.

These three sets of observations provide one effective (+) and one ineffective (–) statement as specified by the "x" in the parenthesis. As you record your introspective observations, use an "x" to indicate your assessment of each as either effective or ineffective. Both may be effective, both ineffective, or one of each.

Note: If you consistently present one "effective" and one "ineffective" statement, it will be assumed you are not generating valid information. For example, if you should say, "I enjoy studying," and follow with the statement, "I hate studying," it will be clear you are completing the assignment with meaningless simplicity. To assure domain clarity, underline the verb causing each observation to fall into the domain of behavior, cognition, or affective state.

Quantitative Summary: Part II of Exhibit A enables you to enter a quantitative summary of the effectiveness or ineffectiveness of your observations. Each cell in the table provides space for entering the number of effective and ineffective statements you have made. Space is provided for totals to facilitate your comparative assessment of the relative effectiveness in each of your three psychological domains and the five variables associated with academic achievement.

BACKGROUND INFORMATION

Paul and Elder (2003) have provided brief historical background for critical thinking and a current dictionary definition.

The concept of critical thinking is embedded not only in a core body of research over the last 30 to 50 years but is also derived from ancient Greek. The word ‘critical’ derives etymologically from two Greek roots: ‘kriticos’ (meaning discerning judgment) and ‘kriterion’ (meaning standards). Etymologically, then, critical thinking implies development of ‘discerning judgment based on standards.’

In *Webster’s New World Dictionary*, the relevant entry reads, “characterized by careful analysis and judgment” and is followed by the gloss: “*critical, in its strictest sense, implies an attempt at objective judgment so as to determine both merits and faults.*” Applied to thinking, then, we might provisionally define critical thinking as thinking explicitly aimed at well-founded judgment and hence utilizing appropriate evaluative standards in the attempt to determine the true worth, merit, or value of something.

It should be clear criticism embraces meritorious as well as adverse assessment. In their miniature guide, “How to Study and Learn,” they provide their own definition of critical thinking:

- Critical thinking is the kind of thinking—about any subject, content, or domain—that improves itself through disciplined analysis and assessment. Analysis requires knowledge of the elements of thought; assessment requires knowledge of the standards for thought.
- Knowledge for disciplined analysis requires understanding and use of eight different elements of thought—purpose, question or issue, concept, information, assumption, inference, implication, and point of view. We do analysis by the separate assessment of each of these elements.
- Knowledge for disciplined standards requires understanding and use of the nine standards of thought—clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness. We use standards to present intellectually responsible and clearly understandable assessments of the true worth, merit, or value of each element.
- Knowledge requiring understanding represents the highest level of knowledge—and such understanding causes an effect. When we truly understand, we can express thinking in a way enabling others to re-create our meaning; to understand what we meant to communicate.

The greatest limit placed on thinking is ignorance. However, knowledge may be minimal or maximal as described by the words—know, comprehend, and understand.

- To know is to be aware of something as a fact or truth—minimal knowledge.
- To comprehend is to know something thoroughly and to perceive its relationships to certain other ideas, facts, or information.
- To understand is to be fully aware not only of the meaning of something and its relationship to other ideas, facts, or information, but also its total implications and significance.

THINKING AND REASONING IN ASSESSMENT

Much of our thinking is extemporaneous and does not require reasoning and well-founded judgment to assess the true worth, merit, or value of a subject, content, or domain. Critical thinking does. Reasoning is the glue of critical thought; it is an independent or causative variable having the effect of shaping the rationale of assessment. A reason is a statement supporting the cause, the effect, or the motivation for any element of critical thinking. Descriptions of cause, effect, or motivation enable the reader or listener to place information into context, to re-create with greater precision the meaning intended by the speaker or author. It can often be enhanced by an example.

- Causative reasoning requires disclosure of thought underlying assessment of any content, subject, or domain as having merit or the lack of merit. It responds to the questions of what and why? This is true whether we are assessing our own, or someone else's behavior, cognition, or affective state. Remember, the three psychological domains are highly interactive; each may contribute to cause and description of it. "The reason I think this is..." "An example of this occurred last year when..."
- Effect reasoning requires disclosure of the result or consequence, the power of ideation to produce anticipated or unanticipated results. For example, were your purposes(s) fulfilled by this assignment? If not, explain why.
- Motivational reasoning requires disclosure of change or anticipated change in thinking, feeling, or behavior associated with analysis of new information.

Consider the First Two Elements: Purpose and Question or Issue:

- As you address the first element—purpose—any comment you make about your purpose for writing this essay must be supported by a reason if it is to have meaning to the reader.
 - The reason may be associated with cause (how or why it caused you to think about critical thinking, per se, about your psychological domains, or your achievement related variables;
 - with effect (how it caused you to think new or different thoughts regarding these issues),
 - or motivation (how it changed your feeling of "need" to think differently about critical thinking or the issues associated with this assignment).
- Without question, the major issues in critical thinking are "analysis" and "standards." Therefore, as you address Element 2, "Question or Issue," you must present your assessment the following:
 - What causes us to feel a "need" for analysis (to break into separate parts) of any subject, content or domain?
 - Why should we adhere to standards when we assess?
 - How does compliance with analysis and standards impact your motivation to speak or write in a way enabling others to better re-create your thought?

The description of cause, effect, and/or motivation places any element of critical thinking into context. The standards of thought about each of the eight elements will be met only when placed in context; when the listeners or readers are able to re-create the meaning intended by the speaker or author.

SOME MISCELLANEOUS THOUGHTS ABOUT THINKING

What Is, and What Limits Thinking? Thinking is not a novel idea. Although we do it all the time when we are awake, we probably think about thinking with low frequency. Thinking is an automatic biological activity of the brain providing us with consciousness or awareness. Our consciousness or awareness structures what we consider our personal reality. We think when we behave—what we do or say; we think when we engage in cognition—when we learn and when we use our learning; and we think when we engage in affective states—feelings, moods and emotions. When we think about the analysis and assessment of thinking, it is like cutting a knife with a knife. Each of us uses our brain to decide and communicate what is happening in our brain.

What Causes Thinking? The automatic biological activity we have named “thinking” is a response caused by either, or both, external or internal stimuli. The external cause of thinking is stimulation of the brain by the basic senses of sight, sound, touch, taste and smell. The senses translate physical and chemical energy from the environment into a form the brain can translate as a representation of our reality.

The internal causes of thinking are both sensory and self-stimulated. For example, some sensations are internal in nature—such as pain, our sense of orientation and our sense of balance. Self-stimulated or automatic thinking is produced by mental manipulation focused on memories of the past, awareness of the present, or thought about the future. We think about not only what was, is, or could be, but also what could have been, may be now, or what might be in the future. The late Carl Sagan estimated the average adult possessed long-term memory equivalent to about 10 billion pages of encyclopedic information. Therefore, we have a profound resource for thinking about our life history; the activity, situation, or context of the moment; or about the immediate or distant future.

What Makes Thinking Critical? By their definition, Paul and Elder emphasize we may think critically about anything—any subject, content, or domain—provided our thinking is improved by disciplined analysis and assessment. .

How Do We Discipline Analysis and Assessment? The concept of analysis requires the separation of any subject, content or domain into its constituent building blocks or elements with an understanding of the relationships and differences between them. For example, the science of chemistry has allowed us to identify some 120 elements constituting the “matter” of our world. Few chemical elements exist in isolation. They are mixed or synthesized with other elements and called compounds. But we know how to separate compounds. For example, we know two parts of hydrogen and one part of oxygen (H₂O) synthesize to become water. We synthesize chemical elements in thousands of ways to make equally thousands of products.

The thinking inherent in the language constituting a subject, content or domain is like a chemical compound. We must identify and assess each element of the compound if we are to fully re-create the meaning of the author or speaker. Elemental assessments are the component parts of critical thinking. Their integration not only explains the cause and effect relationship; they also influence the behavioral dynamic called motivation.

Unlike chemists, Paul and Elder have not used science, but have used creative thinking, to identify a “family” of eight elements whose sequential assessment of any subject, content, or domain is the spoken or written articulation of thought. We discipline thinking by analyzing the subject, content, or domain in a way revealing the full intentionality of the communication of the speaker or writer. The concept of assessment has the general meaning of officially estimating the value of property for purposes of sale or taxation. Assessments are arbitrary and of limited value in the absence of standards for evaluation or judging the meaning and the merit, or lack of merit, of content in any subject or domain. Paul and Elder have identified

nine standards for excellence in the assessment of critical thinking. These standards include clarity, accuracy, precision, relevance, depth, breadth, logic, significance and fairness. Use of these standards allow us to communicate meaning in such an effective way as to enable others to re-create our meaning when they hear what we have said or read what we have written.

So What? Critical thinking is not a global judgment; it is an assessment of multiple elements of the total communication of the speaker, writer, listener, or reader.

The concept of applying discipline to analysis and assessment for improvement requires the sequential use of the elements and continuous use of the standards of thought. Improvement is inherent in the way we utilize these elements and standards to guide us in examining in multiple ways (cause, effect and motivation) the content of our own or someone else's written or oral articulation. The omission of any one of the elements infers the author of the critical thought has presented an incomplete analysis of the information. The omission of any standard implies limitation in the quality of analysis or presentation.

When Should We Think Critically? It is most important to know there is a time to think and a time not to think in accord with the concepts of critical thinking. We say this because there is a spontaneity to life easily extinguished by the disciplined sequence of thought identified as elements and the quality of thought identified as standards. Fortunately, as we learn to think critically, we also learn what subject, content and domains are appropriate for such discipline.

In summary, thinking defines our life as a person as a student, as a member of a family or a community, and as a citizen. The noble purpose of education is to improve the quality of life by modifying thinking. Thinking not only allows us to learn the 3R's, it also allows us to make career decisions and acquire the knowledge required to become a doctor, a skilled-trade member, a teacher, a lawyer, a nurse, an auto mechanic etc. So we think about everything in our lives and if we think our lives are important, we need to learn how to use "disciplined analysis and assessment" for thinking in the acquisition and use of knowledge.

WRITING THE CRITICAL THINKING ESSAY

Writing the critical thinking essay requires the full use of your ability to communicate with elaboration your assessment of the information you have generated in Exhibit A. The following is an abbreviated list of the must basic requirements for writing the essay.

- You must understand the concepts of three psychological domains and five achievement-related variables to complete Exhibit A.
- You must understand the concepts of elements and standards prior to beginning the essay.
- Do not waste time or space in your essay defining or redefining each element you are assessing. Your instructor understands the elements and the criteria for adequate assessment of them. Please review the attached rubric.
- Write in the first person singular. This is an "I, me, my" essay.
 - "My purpose(s) for completing this assignment is/are..."
 - "The question(s) or issue(s) I have about the concept of critical thinking (or the observations I have made are...")

- “I think the concept of three psychological domains...” “I think the concept of five achievement related variables...” etc. for the concepts of Elements and Standards.
- Use subheads generously. As you assess the information you generated in Exhibit A insert a subhead for each of the five achievement-related variables. Assess each variable by elaboration on your observations in the psychological domains. Make meaning clear by describing:
 - What caused you to evaluate it as “effective” or “ineffective?”
 - How is it working for you? Is it producing the results you anticipated, or not?
 - Does your assessment of your observations motivate you to change in any of your psychological domains? If so, state those implications as a separate paragraph. Combining “Implications” with “Information” about each of the five variables will contribute to understanding for both you and the reader; it will also attenuate the assessment you make under the Element, “Implications.”

The following headings must be used and serve as a constant reminder of the element you are assessing:

⇒ Assessment of Element #1—Purpose: All thinking and reasoning about content has or generates purpose(s).

Assess your purpose(s) for completing this assignment. To assess, you must not only state each purpose but also explain the reasons why it has caused you to think as you do about the subject of “critical thinking,” the effect it has had on your thoughts about the advantages or disadvantages of critical thinking, or the way you have or have not been motivated to think differently about critical thinking in the future. Use a separate paragraph to describe each purpose.

- In addition to a good understanding of the total content of the miniature guides, it is suggested you
- Reread pages 2, 3, 10, and 37 of the “Analytic Thinking” guide. Evaluate everything you write in terms of the nine intellectual standards presented in pages 6 and 7.
- From “How to Study and Learn” guide, reread the page inside the front cover and pages 4, 5, 22, 28 and 29.

⇒ Assessment of Element #2—Questions or Issues: All thinking and reasoning about content is an attempt to figure something out, to settle some question(s) or issue(s).

Assess whether or not you believe this assignment enables you to fulfill the issue of critical thinking as it is presented in the definition given by Paul and Elder. Describe the reasoning underlying your questions or issues. Cause—why do you have the question; effect—what would be the advantage of having the answer to this question or issue; motivation—how might the answer to this question or issue motivate you to behave, think or feel differently in the future.

- State any questions you may have about the content of the Paul and Elder miniature guides as an educational source for learning about the requirements for critical thinking and for optimal utilization of your intelligence in the educational process.

- Also, present any questions you may have about this addendum as a learning and instructional document.
- The second purpose of this assignment is related to your observations about yourself. Having made these observations, present any questions you have about the domains, the achievement-related variables or questions emerging as a result of observations you have made of yourself in Exhibit A.
- Reread pages 11 and 38 of the “Analytic Thinking” guide. Though much larger in scope, you may get an idea by rereading pages 36 and 37 of the “How to Study and Learn” guide.

⇒ Assessment of Element 3—Concepts: All thinking and reasoning about content utilizes concepts and ideas.

- Assess the cause, effect or motivation supporting the merit or lack of merit of the concept of elements and nine standards as the generic guidance for engaging in critical thinking.
- Assess the cause, effect, or motivation supporting the merit or lack of merit of examining the three psychological domains and the five achievement related variables for students in this psychology course.
- Reread pages 46 and 47 of the miniature guide on “How to Study and Learn” and use “activated knowledge” as you complete assessment of this element.
- Review again the pages suggested for rereading in element 1 above.

⇒ Assessment of Element #4—Information: All thinking and reasoning about content is based on information, data, and evidence.

Assess the observations in Exhibit A by sequential review of each of the academic achievement-related variables. (You must place a subhead indicating each variable you are addressing, e.g., Study, Completion of College, etc.)

- First, consider the variable “study.” Elaborate generously on the observations you have made. Communicate the deeper meaning of the abbreviated statements presented in Part I by mental manipulation of the information you have drawn from your own private cognitive domain. Mentally manipulate by addressing your reasoning in terms of cause, effect, and/or motivation. For example:
 - If you state “I spend about one hour studying each chapter,” describe the cause—why you do not spend more time studying; the effect—how well is this working for you; and your motivation for investing so little of yourself in the process we call “higher education.”
 - Your analysis will be most effective when written to “standards” allowing your intended meaning of each word, sentence or idea to be readily re-created by the reader.
 - Conclude assessment of each achievement-related variable with as statement of the “Implications” it has for your future.
 - Incorporate in your assessment the similarities and differences revealed by the totals in Part II, i.e., assess the relative strength and or weakness of the three domains and five variables. Use a subhead, “Quantitative Analysis.”
- Reread pages 12 and 39 of the “Analytic Thinking” guide.

⇒ Assessment of Element #5—Assumptions: All thinking and reasoning about content is based assumption(s).

Since you will have written Part I of this assignment hours or days before addressing this element of critical thinking, reexamine what you have written for your integrity and honesty with yourself. Essentially all you have written is based on the assumption that you are a valid observer of your own psychological domains. Can you now find consistency between the behavioral, cognitive and affective domains, or do you now consider any of your observations as unreasonable, questionable, misleading, or contradictory?

- Reread pages 13, 40 and 41 of the “Analytic Thinking” guide.

⇒ Assessment of Element # 6—Inferences: All thinking and reasoning about content requires/makes inferences.

Note: Paul and Elder state in the “Analytic Thinking” guide, (page 45) inferences follow from assumptions. They also state, “An inference is a step in the mind, by which one concludes that something is true based on something else being true, or appearing true.” Since only behavior can be observed directly, we make inferences about what is being thought (cognition) and felt (affect). We observe behavior as “true evidence” and then make inferences about what is true in the thinking and feeling accompanying the behavior.

Like assumptions, inferences must be made by reexamination of the information or data presented in Parts I and II. If you have identified any assumptions as unreasonable, questionable, misleading, or contradictory, take the next step and identify the new assumption(s) you would make based on the revised inference. Reread pages 13 and 40 of the “Analytic Thinking” guide.

⇒ Assessment of Element # 7—Implications: All thinking and reasoning about content leads somewhere and has implications and consequences.

Assuming you have stated “Implications” in assessing each achievement-related variable, now assess any additional behavioral, cognitive, or affective changes you consider desirable and describe the anticipated consequence of each change.

⇒ Assessment of Element 8—Point of View: All thinking and reasoning about content embodies a point of view.

This final element of critical thinking could be placed anywhere in the series of eight elements. Each of us has a past, a present, and a future. The past is history and has largely shaped us as the person we are. The present is an ever-fleeting moment. The future is a time period characterized by the pursuit of purposes, goals, or objectives. We use our encyclopedic memories and “what if” questions to metacognitively create meaning for our current and future behavior, cognition and affect. We are always trying to get from where we are to where we want to be. Change designed to improve the future must always be bridged from the past and to the future.

A point of view is somewhat akin to the concept of feeling in the affective domain. We have a feeling about almost everything. We also have a point of view about almost everything. Anyone who reads your paper will have an appreciation of your point of view toward many issues related to life, personal competence, relationships, and education. Perhaps you can best utilize this element as the final paragraph(s) of your essay to assess the assignment, and your reaction to the assignment as an initial approach to formal teaching and learning about critical thinking.

- Paul, R. and Elder, Linda. (2003) *The thinker's guide for students on how to study and learn a discipline using critical thinking concepts and tools*. Foundation for Critical Thinking, Dillon Beach, CA.
- Paul, R. and Elder, Linda. (2003) *A miniature guide for students and faculty in the foundations of analytic thinking*. Foundation for Critical Thinking, Dillon Beach, CA
- Paul, R., Elder, Linda and Bartell, T. (1997) *California teacher preparation for instructions in critical thinking: research findings and policy recommendations*. Foundation for Critical Thinking, Dillon Beach, Ca.
- Sagan, C. Untitled and undated video,

- Return to Activity: Critical Thinking**
- ◄ Return to complete list of Handout Masters for Chapter 1**
- ▲ Return to Chapter 1: Table of Contents**

Handout Master 1.8b
Critical Thinking: Rubric

PSYCHOLOGY

Rubric for Grading Critical Thinking Assignment

A rubric is a scoring guide associating numerical values with verbal descriptions of the worthiness of any performance. Through analysis, the total performance is subdivided into component parts with both a numerical and verbal scale for evaluating or assessing each.

- Students find a rubric helpful since it provides advance knowledge of how their performance will be evaluated.
- Instructors find a rubric helpful as an instrument for increasing both intrapersonal and interpersonal reliability and uniformity of grading.

The rubric for the critical thinking assignment is modeled with substantial similarity to that used in grading the International Critical Thinking Essay Test (IAT), published by the International Center for the Assessment of Thinking.

Part I—Observation and Part II—Summary

In grading Parts I and II of the assignment, instructors will focus on the extent to which the student has followed directions, made rational, thoughtful observations, and summarized data. A maximum holistic value of eight points will be used with grade equivalents as follows:

- 8 points for excellent performance with a grade equivalent of “A”
- 6 points for above average performance with a grade equivalent of “B”
- 4 points for average performance with a grade equivalent of “C”
- 2 points for poor performance with a grade equivalent of “D”
- 0 points for nonperformance or exceedingly poor performance, grade equivalent of “E”

If less than all points are awarded, comments will be made to explain the rationale for grading.

Part III—Essay

Part III will be graded with a maximum value of “4” on each of the eight elements of critical thinking referenced in the publications of Paul and Elder and in the Addendum to the syllabus.

- 4 points will be assigned as an excellent evaluation (highly skilled)
- 3 points will be assigned as a commendable evaluation (good skill)
- 2 points will be assigned as a mid-level evaluation (average skill)
- 1 point will be assigned as a poor evaluation (almost total absence of skill)
- 0 points will be assigned as a total loss (total absence of skill)

A grading format is presented on the reverse side of this page. A copy will be attached to each student’s returned paper. Instructors may allocate less than maximum points for any of the eight structures of thought without greater rationale than is provided in the rubric. However, if you have question regarding your grade, please contact the instructor.

Rubric for Grading Critical Thinking Assignment
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STUDENT'S NAME: _____ TOTAL POINTS: _____

PART I—Observations and PART II—Summary of Observations—(Maximum grade = 8 points)

_____ A holistic assessment of pursuit of directions and clarity in describing and summarizing observations

PART III: Essay—(Maximum Score = 32 points)

Purpose(s):

- 4 points: Excellent. Identifies two or more (personally valuable) purposes for completing the assignment.
- 3 points: Commendable. Identifies one (personally valuable) purpose for completing the assignment.
- 2 points: Mid-level. Lacks clarity in statement of the personal value for completing the assignment.
- 1 point: Poor. States purpose(s) unrelated to instructions.

Questions:

- 4 points: Excellent. Distinct questions about each predefined purpose and each personal purpose.
- 3 points: Commendable. Distinct questions about either predefined or personal purposes, but not both.
- 2 points: Mid-level: Has few questions about purpose.
- 1 Point: Questions lack clear relationship to any purpose.

Concepts:

- 4 points: Excellent. Assess merit or lack of merit of “elements & standards:” “domains & variables.”
- 3 points: Commendable. Provides less than full insight into the rationale for each of the four major concepts.
- 2 points: Mid-level. Limited description of relationships between major and subordinate concepts.
- 1 point: Poor. Assessment of the four major concepts has very limited meaning.

Information:

- 4 points: Excellent. Assesses the deeper meaning of observations in each achievement-related variable and totals.
- 3 points: Commendable. Assesses well for achievement-related variables, but not for quantitative totals.
- 2 points: Mid-level: Elaborations provide modest insight into the rationale for observations and totals.
- 1 point: Poor: Description is limited; does little to expand meaning of observations.

Assumptions:

- 4 points: Excellent. Identifies in Part I two or more observations with less than complete “evidence.”
- 3 points: Commendable. Identifies in Part I one observation with less than adequate “evidence.”
- 2 points: Mid-level. Describes “assumptions” but does not identify any in Part I.
- 1 point: Poor. Non-specific comments identifying or explaining assumptions.

Inferences:

- 4 points: Excellent. Identifies two or more specific inconsistencies between behavior, cognitive and affect statements in Part I
- 3 points: Commendable. Identifies one inconsistency between statements of behavior, cognition and affect.

2 points: Mid-level. Identifies one or more inferences in the “Information Element” presented (above).

1 point: Poor. Very limited identification of inference in Part I or previously presented information.

Implications:

4 points: Excellent. Identifies two or more behavior changes needed for more effectiveness in achievement-related variables.

3 points: Commendable. Identifies the one most needed behavior change needed for improvement.

2 points: Mid-level. Lacks clarity on specific need or advantage of change.

1 point: Poor. Limited recognition of implications, per se.

Point of View:

4 points: Excellent. Articulates the advantages or disadvantages of critical thinking and of this assignment.

3 points: Commendable. Articulates the specific advantages or disadvantages of this assignment only.

2 points: Mid-level. Description indicates a limited understanding of the “system” and the “assignment”.

1 point: Poor. Acknowledges critical thinking as a learning objective, but does not indicate why.

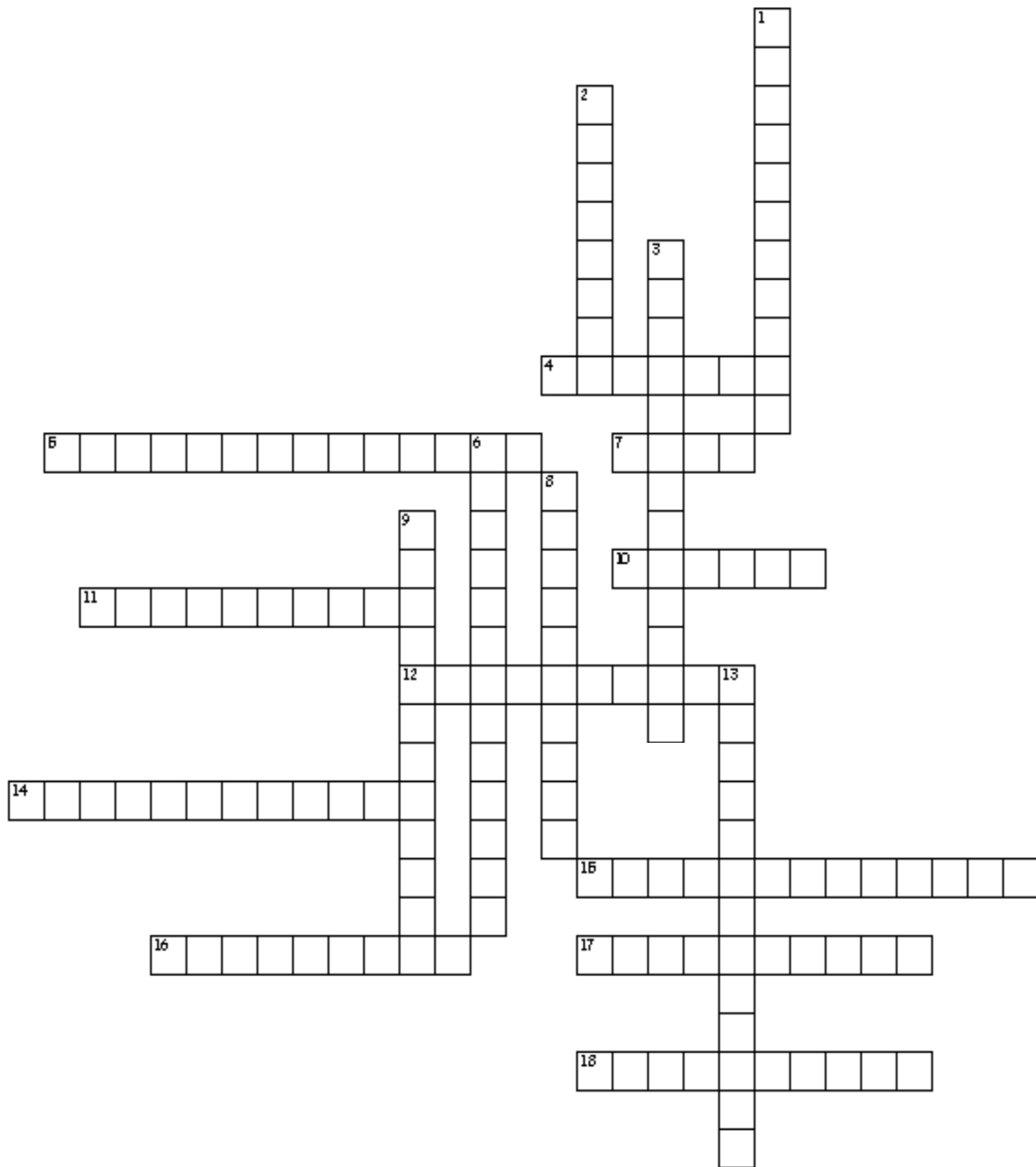
Total possible points is 40. A grade of 36 or more is equivalent to a grade of “A”; 32–35 = “B”; 28–31 = “C”; and 24–27 = “D”.

► Return to Activity: Critical Thinking

◄ Return to complete list of Handout Masters for Chapter 1

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Handout Master 1.9
Crossword Puzzle



Across

4. the phenomenon in which the expectations of the participants in a study can influence their behavior.
5. the theory and therapy based on the work of Sigmund Freud.
7. tendency of observers to see what they expect to see.
10. process of assigning subjects to the experimental or control groups randomly, so that each subject has an equal chance of being in either group.
11. the scientific study of behavior and mental processes.
12. tentative explanation of a phenomenon based on observations.
14. a professional with an academic degree and specialized training in one or more areas of psychology.
15. early perspective in psychology associated with Wilhelm Wundt and Edward Titchener, in which the focus of study is the structure or basic elements of the mind.
16. in research, repeating a study or experiment to see if the same results will be obtained in an effort to demonstrate reliability of results.
17. the entire group of people or animals in which the researcher is interested.
18. a deliberate manipulation of a variable to see if corresponding changes in behavior result, allowing the determination of cause and effect relationships.

Down

1. a measure of the relationship between two variables.
2. thinking and making reasoned judgments about claims.
3. early perspective in psychology associated with William James, in which the focus of study is how the mind allows people to adapt, live, work, and play.
6. the process of examining and measuring one's own thoughts and mental activities.
8. method system of gathering data so that bias and error in measurement are reduced.
9. a medical doctor who has specialized in the diagnosis and treatment of psychological disorders.
13. perspective that focuses on the relationship between social behavior and culture.

► Return to Activity: Crossword Puzzle

◄ Return to complete list of Handout Masters for Chapter 1

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Handout Master 1.10

Fill-in-the-Blanks

2. The science of _____ that focuses on observable _____ only. It must be directly seen and able to be measured.
3. Defined as to how the mind allows people to adapt, live, work, and play, it is called _____.
4. This type of psychology focused on structure or basic elements of the mind and is called _____.
5. The definition of _____ is the scientific study of behavior and mental processes
6. The four goals of psychology are _____, _____, _____, and _____.
7. The general explanation of a set of observations or facts is called _____.
8. _____ ideas are now part of the study of *cognitive psychology*, a field focusing not only on perception but also on learning, memory, thought processes, and problem solving.
9. _____ was the theory and therapy based on the work of Sigmund Freud.
10. _____ held the view that people have free will, the freedom to choose their own destiny.
11. The _____ perspective focuses on memory, intelligence, perception, problem solving, and learning.
12. A system of gathering data so that bias and error in measurement are reduced is called the _____.
13. A tentative explanation of a phenomenon based on observations is called a _____.
14. Watching animals or humans behave in their normal environment without interacting with them in any way is called _____.
15. A researcher will ask a series of questions about the topic under study in a method called _____.
16. When groups of psychologists or other professionals who look over each proposed research study and judge it according to its safety and consideration for the participants in the study they are interested in the _____ of the study.
17. A system of explaining human behavior that are not based on or consistent with scientific evidence is called _____.
18. The tendency of the experimenter's expectations for a study to unintentionally influence the results of the study is called the _____ effect.
19. A measure of the relationship between two variables is called a _____.
20. The _____ perspective focuses on the biological bases of universal mental characteristics that all humans share.
21. A _____ is a professional with an academic degree and specialized training in one or more areas of psychology.
22. The _____ perspective attributes human and animal behavior to biological events occurring in the body, such as genetic influences, hormones, and the activity of the nervous system.
23. A deliberate manipulation of a variable to see if corresponding changes in behavior result, allowing the determination of cause-and-effect relationships is called an _____.

Words for Fill-in-the Blanks

Behaviorism
Biopsychological
Cognitive
Control
Correlation
Description
Ethics
Evolutionary
Experiment
Experimenter
Explanation
Functionalism
Gestalt
Humanism
Hypothesis
Naturalistic observation
Prediction
Pseudopsychology
Psychoanalysis
Psychologist
Psychology
Scientific method
Structuralism
Surveys
Theory

► Return to Activity: Fill-in-the-Blanks

◄ Return to complete list of Handout Masters for Chapter 1

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▼ **APS: READINGS FROM THE ASSOCIATION OF PSYCHOLOGICAL SCIENCE**

Current Directions in Introductory Psychology, Second Edition (0-13-714350-8)

Edited by Abigail A. Baird, with Michele M. Tugade and Heather B. Veague

Available for packaging at no charge with Ciccarelli/White *Psychology*, Third Edition

This new and exciting American Psychological Reader includes timely, cutting-edge articles, giving readers a real-world perspective from a reliable source *Current Directions in Psychological Science* journal. This reader includes over 20 articles that have been carefully selected and taken from the very accessible *Current Directions in Psychological Science* journal. Articles discuss today's most current and pressing issues in introductory psychology and are broken down into these main sections: Scientific Thinking; Nature/Nurture; Consciousness; Individual Differences; and Applications.

Morton Ann Gernsbacher, Michelle Dawson, H. Hill Goldsmith

Three Reasons Not to Believe in an Autism Epidemic. (Vol. 14, No. 2, 2005, pp. 55—58) p. 136 in the APS reader

According to some lay groups, the nation is experiencing an autism epidemic—a rapid escalation in the prevalence of autism for unknown reasons. However, no sound scientific evidence indicates that the increasing number of diagnosed cases of autism arises from anything other than purposely broadened diagnostic criteria, coupled with deliberately greater public awareness and intentionally improved case finding. Why is the public perception so disconnected from the scientific evidence? In this article we review three primary sources of misunderstanding: lack of awareness about the changing diagnostic criteria, uncritical acceptance of a conclusion illogically drawn in a California-based study, and inattention to a crucial feature of the “child count” data reported annually by the U.S. Department of Education.

► **Return to Lecture Guide: Psychology: The Scientific Methodology**

▲ **Return to Chapter 1: Table of Contents**

Suniya S. Luthar, Shawn J. Latendresse

Children of the Affluent. Challenges to Well-Being. (Vol. 14, No. 1, 2005, pp. 49—53) p. 21 in the APS reader

Growing up in the culture of affluence can connote various psychosocial risks. Studies have shown that upper-class children can manifest elevated disturbance in several areas—such as substance use, anxiety, and depression—and that two sets of factors seem to be implicated, that is, excessive pressures to achieve and isolation from parents (both literal and emotional). Whereas stereotypically, affluent youth and poor youth are respectively thought of as being at “low risk” and “high risk,” comparative studies have revealed more similarities than differences in their adjustment patterns and socialization processes. In the years ahead, psychologists must correct the long-standing neglect of a group of youngsters treated, thus far, as not needing their attention. Family wealth does not automatically confer either wisdom in parenting or equanimity of spirit; whereas children rendered atypical by virtue of their parents' wealth are undoubtedly privileged in many respects, there is also, clearly, the potential for some nontrivial threats to their psychological well-being.

► **Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking**

▲ **Return to Chapter 1: Table of Contents**

Kate Sweeny, Patrick J. Carroll, James A. Shepperd

Is Optimism Always Best?: Future Outlooks and Preparedness. (Vol. 15, No. 6, 2006, pp. 302—306) p. 169 in the APS reader

Although people generally appear optimistic about the future, they shift from optimism under certain circumstances. Drawing from a recent review of the literature, we describe how both optimism and shifts from optimism serve the common goal of preparedness, which includes a readiness to deal with setbacks and a readiness to take advantage of opportunities. Shifts from optimism occur in response to available information and to the possibility that things may not turn out as hoped. People tend to shift from optimism when feedback is anticipated in the near future, when the outcome is important, when negative outcomes are easily imagined, and when the outcomes are uncontrollable. In addition, people with low self-esteem shift from optimism more readily than do people with high self-esteem. Finally, both optimism and shifts from optimism have unique benefits in terms of preparedness.

► Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

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▼ ***Forty Studies that Changed Psychology: Explorations into the History of Psychological Research, 6/e (013603599X)***

By Roger Hock

Available for packaging with Ciccarelli/White *Psychology*, Third Edition

This unique book closes the gap between psychology textbooks and the research that made them possible by offering a first hand glimpse into 40 of the most famous studies in the history of the field, and subsequent studies that expanded upon each study's influence. Readers are able to grasp the process and excitement of scientific discovery as they experience an insider's look at the studies that continue today to be cited most frequently, stirred up the most controversy when they were first published, sparked the most subsequent related research, opened new fields of psychological exploration, and changed most dramatically our knowledge of human behavior.

Watch Out For The Visual Cliff!

Gibson, E. J., & Walk, R. D. (1960). The "visual cliff." *Scientific American*, 202(4), 67—71.

► **Return to Lecture Guide: Psychology Then: The History of Psychology**

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▼ WEB RESOURCES

General/Comprehensive

Amoeba Web: <http://vanguard.edu/faculty/ddegelman/amoebaweb/>

A site containing nicely organized tables of links to web pages related to various topics in psychology.

Centre for Psychology Resources: <http://psych.athabasca.ca/html/aupr/psycres.shtml>

A site maintained by Athabasca University in Canada. Provides comprehensive information on a variety of psychology topics.

Psych Web: <http://www.psychwww.com>

A cornucopia of psychology-related links maintained by the Psychology Department at Georgia Southern University.

PsychCrawler: <http://www.psychcrawler.com/>

Want a search engine just for information about psychology? PsychCrawler allows you to search for journal articles, books, and web content.

Psychwatch: <http://www.psychwatch.com>

Psychwatch began in April, 1998 as a free weekly email Newsletter detailing events and internet-related developments in the mental health field. It has since evolved into a global communication and information network, providing information to those in the healthcare and mental health care fields.

Psychology Central: <http://www.psych-central.com/>

Web links and online resources for psychology students and faculty.

Science & Pseudoscience Review in Mental Health: <http://www.pseudoscience.org>

“The Review” is an online resource for questioning “scientific” claims in mental health research and publishing. This is a great resource for student projects to explore various scientific claims related to EMDR, touch therapies, and hidden memories, just to name a few...

Social Psychology Network: <http://www.socialpsychology.org/>

Well-organized links related to topics in social psychology.

Tests, Tests, Tests: <http://www.queendom.com/tests>

A vast variety of psychological tests established and maintained by “Cyberia Shrink.”

► **Return to Lecture Guide: What Is Psychology?**

▲ **Return to Chapter 1: Table of Contents**

Major Professional Organizations

APA – American Psychological Association: <http://www.apa.org>

Information about the APA and links to other sites.

APS – Association for Psychological Science: <http://www.psychologicalscience.org>

Information about the APS and links to other sites.

Division 3 of the American Psychological Association: <http://www.apa.org/divisions/div3/>

The Division of Experimental Psychology of the American Psychological Association was formed many years ago to represent the interests and concerns of psychologists whose principal area of study or research lies within the field of general experimental psychology.

Division 7 of the American Psychological Association:

<http://classweb.gmu.edu/awinsler/div7/homepage.shtml>

Division 7 was organized to (a) promote research in the field of Developmental Psychology; (b) foster the development of researchers through providing information about educational opportunities and recognizing outstanding contributions to the discipline; (c) facilitate exchange of scientific information about developmental psychology through publications such as the division's newsletter and through national and international meetings; and (d) promote high standards for the application of scientific knowledge on human development to public policy issues.

Experimental Psychology Society: <http://www.eps.ac.uk/>

The Experimental Psychology Society is for the furtherance of scientific inquiry within the field of Psychology and cognate subjects. It holds periodical meetings at which papers are read and discussions held. The Society also disseminates information and educational material made available as a consequence of psychological research, including the publication of the Quarterly Journal of Experimental Psychology (Section A: Human Experimental Psychology, and Section B: Comparative and Physiological Psychology).

Jean Piaget Society: <http://www.piaget.org/>

This site was created as an information resource for members of the Jean Piaget Society. The Jean Piaget Society, established in 1970, has an international, interdisciplinary membership of scholars, teachers and researchers interested in exploring the nature of the developmental construction of human knowledge.

Philosophy of Science Association: <http://philosophy.wisc.edu/PSA/Default.htm>

The Philosophy of Science Association aims to further studies and free discussion from diverse standpoints in the field of philosophy of science. To this end, the PSA engages in activities such as: the publishing of periodicals, essays and monographs in this field; sponsoring conventions and meetings; and the awarding of prizes for distinguished work in the field.

Psychonomic Society: <http://www.psychonomic.org/> Psychonomic Society

One of the premier organizations of modern experimental psychology. The Psychonomic Society promotes the communication of scientific research in psychology and allied sciences.

Society of Clinical Psychology: <http://www.apa.org/divisions/div12/homepage.html>

This site is sponsored by Division 12 of APA and addresses a variety of research, theory, and practice issues associated with clinical psychology.

Society of Counseling Psychology: <http://www.div17.org/>

Division 17 – Counseling Psychology was founded in 1946 to promote personal, educational, vocational, and group adjustment in a variety of settings. Presently, Division 17 brings together psychologists, students, and international and professional affiliates who are dedicated to promoting education and training, scientific investigation, practice, and diversity and public interest in professional psychology.

Society of Experimental Social Psychology (SESP): <http://www.sesp.org/>

SESP is a scientific organization dedicated to the advancement of social psychology.

Society for Personality and Social Psychology: <http://www.spsp.org/>

With over 4,000 members, the Society is the largest organization of social and personality psychologists in the world. The goals of the Society are to further the generation and dissemination of research in personality and social psychology.

Society for Psychological Study of Social Issues: <http://www.spssi.org/>

SPSSI is an international group of over 3500 psychologists, allied scientists, students, and others who share a common interest in research on the psychological aspects of important social issues. In various ways, the Society seeks to bring theory and practice into focus on human problems of the group, the community, and nations, as well as the increasingly important problems that have no national boundaries.

Society for Research in Child Development: <http://www.srkd.org/>

The Society is a multidisciplinary, not-for-profit, professional association with a membership of approximately 5,500 researchers, practitioners, and human development professionals from over 50 countries.

The purposes of the Society are to promote multidisciplinary research in the field of human development, to foster the exchange of information among scientists and other professionals of various disciplines, and to encourage applications of research findings.

► **Return to Lecture Guide: Psychological Professionals and Areas of Specialization**

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History of Psychology

Archives of the History of American Psychology: <http://www.uakron.edu/ahap>

Psychology's attic, maintained at the University of Akron.

Classics in the History of Psychology: <http://psychclassics.yorku.ca/>

This document repository, complete with a search engine, allows you to read excerpts from classic papers in psychology.

History of Psychology: <http://server.bmod.athabasca.ca/html/aupr/history.htm>

The Psychology Center's History of Psychology page has many websites to choose from, including broad topics and those specific to the history of psychology. Your students can learn more about psychology's past or investigate the history of a particular topic that interests them.

History of Psychology Timeline: http://www.geocities.com/Athens/Delphi/6061/en_linha.htm

History of Psychology Timeline from early civilization to the present. This is worth a visit by both you and your students. Recommend this to your students as a way of organizing their studying, by placing the right people and the right ideas at the right time.

Today in the History of Psychology: <http://www.cwu.edu/~warren/today.html>

Warren R. Street, of the University of Central Washington, knows everything about who was born when, who died when, what got published when, and what happened where.

► **Return to Lecture Guide: Psychology Then: The History of Psychology**

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Psychological Theories

About Psychoanalysis: <http://www.apsa.org/pubinfo.about.htm>

An article on this topic from the American Psychoanalytic Association.

Humanistic Psychology from Maslow to the 21st Century:

<http://www.ahpweb.org/aboutahp/whatis.html>

A brief history of the humanistic psychology movement.

Mind and Body: Rene Descartes to William James: <http://serendip.brynmawr.edu/Mind/Table.html>

Robert H. Wozniak, of Bryn Mawr College, presents this history of ideas.

B.F. Skinner Foundation: <http://www.bfskinner.org/>

Read a biography of the famous behaviorist, complete a training course on his theories, and visit a media archive replete with audio and video clips. The B.F. Skinner Foundation was established in 1987 to educate the public about B. F. Skinner's work, and to promote an understanding of the role of contingencies in human behavior.

The Varieties of Religious Experience: <http://www.psychwww.com/psyrelig/james/toc.htm>

This work by William James is available in its entirety on the Web, courtesy of the folks at Georgia Southern University.

► Return to Lecture Guide: Psychology Now: Modern Perspectives

▲ Return to Chapter 1: Table of Contents

Majoring in Psychology

Graduate Study in Psychology: <http://www.uky.edu/Education/EDP/psyprog.html>

Steer your students to this site to answer the many questions you undoubtedly answer yourself. "What's the GRE?" "What do forensic psychologists do?" and "What's the difference between a PsyD and a Ph.D.?" can be answered here.

Tipsheets for Psychology Majors: <http://www.psychwww.com/tipsheet/index.html>

Also from the Psychology Department at Georgia Southern University.

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Careers in Psychology

APA Divisions: <http://apa.org/about/division.html>

The American Psychological Association's links to all of its divisions. Steer your students here to learn more about the major areas of psychology and what psychologists with these specializations do for a living.

Careers in Psychology: <http://academic.uofs.edu/departments/psych/handbook/x.html>

A description of various career areas in psychology, including salary information.

Marky Lloyd's Careers in Psychology Page: <http://www.psywww.com/careers/index.htm>

M.A. Lloyd at Georgia Southern University prepared this helpful site.

► **Return to Lecture Guide: Psychological Professionals and Areas of Specialization**

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Ethics

APA Code of Ethics: <http://www.apa.org/ethics/code.html>

American Psychological Association's Ethical Principles of Psychologists and Code of Conduct. Your students may be required to participate in experiments as part of their introductory course. Introduce them to this website either at the start of the semester (to allay their fears about participating in studies) or at the end (as a "wrap-up" paper comparing their research experiences with the ethical guidelines stated by APA).

Cloning (msnbc.com): http://www.msnbc.com/news/CLONING_front.asp

Articles on the pros and cons of cloning are available.

► **Return to Lecture Guide: Ethics of Psychological Research**

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Research Methods and Statistics

Rice Virtual Lab in Statistics: <http://onlinestatbook.com/rvls.html>

Includes links to an online statistics textbook, simulations and demonstrations, case studies, and basic statistical analysis tools.

VassarStats: <http://faculty.vassar.edu/lowry/VassarStats.html>

Richard Lowry from Vassar College maintains this excellent site for statistical calculations.

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▼ VIDEO RESOURCES

Pearson Psychology Video Collections:

Introductory Psychology Teaching Films Boxed Set ISBN (0131754327)

Offering you an easy to use multi-DVD set of videos, more than 100 short video clips of 5–15 minutes in length from many of the most popular video sources for Psychology content, such as ABC News; the Films for the Humanities series; PBS; and more!

NEW Pearson Education Teaching Films Introductory Psychology: Instructor's Library 2-Disk DVD Annual Edition (ISBN 0205652808)

Annual updates of the most popular video sources for Psychology content, such as ABC News; the Films for the Humanities series; PBS; and more in 5-15 minute clips on an easy to use DVD!

Lecture Launcher Video for Introductory Psychology (ISBN 013048640X)

This 60-minute videotape includes twenty-five segments covering all of the major topics in introductory psychology. All of the segments have been selected from videotapes in the Films for Humanities & Sciences collection. The segments are intended to provide brief illustrations of concepts, and to serve as a starting point for classroom discussions.

FILMS FOR HUMANITIES AND SCIENCES VIDEO LIBRARY (<http://www.films.com>)

Qualified adopters can select videos on various topics in psychology from the extensive library of *Films for the Humanities and Sciences*. Contact your local sales representative for a list of videos and ISBN's.

Other video series are available, ask your Pearson sales representative for more details.

Video Clips Available for Chapter 1: The Science of Psychology

- ☞ [Carl Jung on Alchemy and Symbolism](#)
- ☞ [Theories and Hypotheses](#)
- ☞ [Human Cloning: The Ethics](#)
- ☞ [Talking to Heaven](#)
- ☞ [Before Informed Consent: Robert Guthrie](#)
- ☞ [Even the Rat was White: Robert Guthrie](#)
- ☞ [Gun Control Makes Us Safer](#)
- ☞ [Animal Rights Terrorists](#)
- ☞ [The Secret](#)
- ☞ [Magical Thinking: Children](#)
- ☞ [Magical Thinking: Adults](#)
- ☞ ["Straightening Out" Homosexuals](#)
- ☞ [Carlos: A Channeler](#)
- ☞ [Cold Reading: Talking to Popular Heaven Medium James Van Praagh](#)

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DESCRIPTION OF VIDEO CLIPS:

▼ From Introductory Psychology Teaching Films Boxed Set ISBN (0131754327)

Carl Jung on Alchemy and Symbolism

Source: *Films for Humanities & Sciences*

Video: *Passions of the Soul - Symbolism*

Run Time: 3:22

Description: Among the many things he believed, Carl Jung believed that the drawings and writings of alchemists were a rich source of information about symbols and the collective unconscious. Here he describes some of his views on the importance of embracing alchemy as a source of inspiration for modern psychology.

Uses: Unlike many other pioneers of psychology, there is substantial video footage of Jung explaining his ideas. This clip presents a black-and-white interview with Jung on the subject of alchemy. Because his accent is somewhat thick, you might want to precede the presentation of this clip with a discussion of Jung's basic ideas, or consider transcribing parts of his interview for students to read.

► **Return to Lecture Guide: Psychology Then: The History of Psychology**

◄ **Return to complete list of Video Clips for Chapter 1**

Theories and Hypotheses

Source: *Films for Humanities & Sciences*

Video: *The Scientific Method*

Run Time: 1:37

Description: The difference between theories and hypotheses is explained. Two applied scientists provide examples of how theories become revised in light of new information, and how this process furthers the accumulation of knowledge in a science.

Uses: This segment provides a good starting point for helping students understand the scientific method. Whereas most students believe that scientific results either “prove” or “disprove” a hypothesis, in fact scientific explanations are in constant revision as new evidence emerges.

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Human Cloning: The Ethics

Source: *ScienCentral*

Run Time: 1:37

Description: Scientist and ethicist are generally against the cloning of humans, but most scientists support cloning cells that can be used to treat disorders and the effects of old age. Here they express the need for laws to guide cloning procedures.

Use: This clip provides a good starting point for a discussion of cloning, especially the laws that some states have passed concerning reproductive and therapeutic cloning.

► **Return to Lecture Guide: Ethics of Psychological Research**

◄ **Return to complete list of Video Clips for Chapter 1**

Talking to Heaven

Source: ABC News – 20/20 (6/21/1999)

Run Time: 14:43

Description: This segment highlights the tendency of many to believe in psychics and engage in magical thinking by showing a psychic who claims to be able to communicate with the dead.

Uses: Why it is important to learn and practice critical thinking skills? This clip would be a good introduction to psychology, its methods, as well as the value of empirical evidence and the reasons for the scientific method. It could also be used to start a discussion about motivation. For example, why do people believe in the absence of empirical evidence?

► Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

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▼ From: Introductory Psychology Teaching Films, 2009, Science and Pseudoscience (ISBN 0205652808)

Before Informed Consent: Robert Guthrie

Run Time: 2:59

Description: Interview with Robert Guthrie—through his research, his writing and his ground-breaking career as an educator, he helped put a new face on psychology.

► Return to Lecture Guide: Ethics of Psychological Research

◄ Return to complete list of Video Clips for Chapter 1

Even the Rat was White: Robert Guthrie

Run Time: 2:01

Description: Interview with Robert Guthrie. Guthrie's book, "Even the Rat Was White: A Historical View of Psychology," illuminated the contributions of pioneering black psychologists while challenging dubious studies that reinforced racial stereotypes.

► Return to Lecture Guide: Ethics of Psychological Research

◄ Return to complete list of Video Clips for Chapter 1

Gun Control Makes Us Safer

Source: ABC News

Run Time: 4:27

Description: Examination of the idea guns make us safer: interviews with individuals representing both sides of the discussion and background on some of the US laws around gun control.

Uses: Good critical thinking/debate discussion for the classroom.

► Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

◄ Return to complete list of Video Clips for Chapter 1

Animal Rights Terrorists

Source: Pearson Education

Run Time: 1:31

Uses: Good critical thinking/debate discussion for the classroom.

► Return to Lecture Guide: Ethics of Psychological Research

◄ Return to complete list of Video Clips for Chapter 1

The Secret

Source: ABC News

Run Time: 2:06

Description: Review of positive thinking as depicted in Rhonda Byrne's popular book.

Uses: Good critical thinking/debate discussion for the classroom.

► Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

◄ Return to complete list of Video Clips for Chapter 1

Magical Thinking: Children

Source: ABC News

Run Time: 4:55

Description: Children exhibit forms of magical thinking around 18 months. To learn more about "magical thinking," Professor Robert Kavanaugh (ph) at Williams College in Massachusetts devised a test that involves an imaginary animal and a box.

Uses: Good critical thinking/debate discussion for the classroom.

► Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

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Magical Thinking: Adults

Source: ABC News

Run Time: 2:52

Description: The Growing Faith in the 'The Secret' Power of Positive Thoughts

Uses: Good critical thinking/debate discussion for the classroom.

► Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

◄ Return to complete list of Video Clips for Chapter 1

"Straightening Out" Homosexuals

Source: ABC News

Run Time: 4:55

Description: A ministry tries to change homosexuals into heterosexuals through prayer.

Uses: Good critical thinking/debate discussion for the classroom.

► Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

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Carlos: A Channeler

Source: ABC News

Run Time: 4:14

Description: Carlos is really Jose Alvarez, a Florida artist coached by James Randi on how to fake being a channeler—interview and report by John Stossel.

Uses: Good critical thinking/debate discussion for the classroom.

► Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

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Cold Reading: Talking to Popular Heaven Medium James Van Praagh

Run Time: 13:59

Description: Interview with James Van Praagh, who claims he can communicate with the deceased and charges \$150 to anyone wanting to contact a dead relative. Skeptics Society founder Michael Shermer asserts Van Praagh is merely engaging in parlor games.

Uses: Good critical thinking/debate discussion for the classroom.

► Return to Lecture Guide: Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

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▼ MULTIMEDIA RESOURCES

On-line Resources: MyPsychLab

See/Hear/Learn/Explore More Icons integrated in the text lead to web-based expansions on topics, allowing instructors and students access to extra information, videos, podcasts and simulations. The in-text icons are not exhaustive—there are many more resources available to instructors and students on-line at www.MyPsychLab.com.

What Is MyPsychLab? MyPsychLab is a learning and assessment tool that enables instructors to assess student performance and adapt course content. Students benefit from the ability to test themselves on key content, track their progress, and utilize individually tailored study plan. In addition to the activities students can access in their customized study plans, instructors are provided with extra lecture notes, video clips, and activities that reflect the content areas their class is still struggling. Instructors can bring into theses resources to class, or easily post on-line for students to access.

Assessment and Ability to Adapt MyPsychLab is designed with instructor flexibility in mind—you decide the extent of integration into your course—from independent self-assessment for students, to total course management. For sample syllabi with ideas on incorporating MPL, case studies, as well as data and feedback from students and answers to FAQ's, see the Appendix in this manual, as well as on-line at www.mypsychlab.com.

MyPsychLab Highlights for Chapter 1: The Science of Psychology

Observational Studies, Correlational Studies, Experimental Method, Statistics

This collection of modules introduces students to the basics of research design and analysis. *Observational Studies* discusses the merits of using nonexperimental techniques, such as participant observation and naturalistic observation. *Correlational Studies* shows how to interpret positive and negative correlation coefficients, including examples of scatterplots. *The Experimental Method* illustrates the concepts of independent and dependent variable, confounds, and random assignment to conditions. The section on *Statistics* covers both descriptive and inferential statistics, including measures of central tendency and variability.

Psychology in the News (3:03)

Psychology in the News podcast on critical thinking connects real world events to the chapter content. Have students listen and then open up the discussion in class of recent controversies around stem cell research.




Audio File of the Chapter

A helpful study tool for students—they can listen to a complete audio file of the chapter. Suggest they listen while they read, or use the audio file as a review of key material.

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Chapter 1 Multimedia Content available at www.mypsychlab.com

Psychology Then: The History of Psychology

-  Interactive Timeline: Explore more important dates in psychology (in text icon p. 6)
-  Biographies: Learn more about key figures in the history of psychology with these audio files
-  Video Classic footage of John Watson, Rosalie Raynor, and Little Albert










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Psychological Professionals and Areas of Specialization

-  Women in the field of psychology video: Interview with Florence Denmark




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Psychology: The Scientific Methodology

-  Case Study: Learn More about Phineas Gage
-  Video on Naturalistic Observation
-  Explore More with a simulation on why Correlation Does Not Show Causation
-  Explore More: Simulation on Observational Studies (in text icon p. 25)
-  Simulation on the Scientific Method
-  Explore More: Simulation distinguishing Independent and Dependent Variables (in text icon p. 28)
-  Video Classic footage of Bandura's Bobo Doll study
-  Simulation on doing simple statistics
-  Video Classic footage: Konrad Lorenz (in text icon p. 30)




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Ethics of Psychological Research

-  Simulation on Ethics in Psychological Research
-  Video on Informed Consent Interview with Guthrie
-  Video on the Animal Research Controversy



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Applying Psychology to Everyday Life: Thinking Critically About Critical Thinking

-  Psychology in the News podcast: Controversies around stem cell research (in text icon p. 37)
-  Explore How to be a Critical Thinker
-  Learn more about phrenology (in text icon p. 38)

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Chapter Summary

-  Audio file of the chapter (students can listen to the entire chapter) (in text icon p. 40)
-  Test Yourself—practice quizzes (in text icon p. 42)

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▼ CLASSROOM or PERSONAL RESPONSE SYSTEM (“Clicker” Questions)

Pearson Education has partnerships with leading classroom response systems on the market. For more information about Classroom Response Systems and our partnerships, please go to <http://www.pearsonhighered.com/crs>.

The classroom response questions created for Ciccarelli/White *Psychology, 3e* (ISBN 0205203701) are designed to assess your students’ progress in the class. Students become active learners and the immediate feedback provides you with insight into their learning. Clicker questions are available for download at the instructor’s resource center at www.pearsonhighered.com/irc, as well as on the Instructor’s Resource DVD (ISBN 0205153488). The third edition slides include two sections for each chapter: definitional and application questions, as well as a section with Critical Thinking and Student Opinion slides.

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▼ *Psychology, 3e* POWERPOINT SLIDES

TWO Distinct Sets of PowerPoint Slide Collections Available:

1. **The Interactive PowerPoint slides by Derek Borman (Mesa Community College)** bring the powerful Ciccarelli/White design right into the classroom, drawing students into the lecture and providing wonderful interactive exercises, visuals and videos. A video walk through is available and provides easy to use guidelines on customizing the slides.

Detailed instructor notes for the slides are available for download at www.pearsonhighered.com/irc. NOTE--the slides themselves are too large for download. The slides and all support materials are available on the Instructor's Resource DVD (ISBN 0205153488).

2. **The second set of PowerPoint slides by Fred Whitford (Montana State University) (ISBN 020502498X)** is available for download at www.pearsonhighered.com/irc. These slides are revised from the second edition PowerPoint slides, and provide a more traditional approach to presenting the material, with clear excerpts of the text material, photos, and art work also included.

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▼ ACCESSING RESOURCES for Ciccarelli/White *Psychology, Third Edition*

For a list of all student resources available with Ciccarelli/White, go to www.mypearsonstore.com, enter the text ISBN (0205832571) and check out the “Everything That Goes With It” section under the book cover.

For access to the instructor supplements for Ciccarelli/White *Psychology, 3e*, simply go to <http://pearsonhighered.com/irc> and follow the directions to register (or log in if you already have a Pearson user name and password).

Once you have registered and your status as an instructor is verified, you will be e-mailed a login name and password. Use your login name and password to access the catalogue. Click on the “online catalogue” link, click on “psychology” followed by “introductory psychology” and then the Ciccarelli/White *Psychology, Third Edition* text. Under the description of each supplement is a link that allows you to download and save the supplement to your desktop.

For technical support for any of your Pearson products, you and your students can contact <http://247.pearsoned.com>.

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Chapter 1

1. In the definition of psychology, the term mental processes means
- a. internal, covert processes.
 - b. outward behavior.
 - c. overt actions and reactions.
 - d. only animal behavior.

ANS: a

LO=1.1

2. A psychologist is interested in finding out why identical twins have different personalities. This psychologist is most interested in the goal of
- a. description.
 - b. explanation.
 - c. prediction.
 - d. control.

ANS: b

LO=1.1

3. Psychologists who give potential employees tests that determine what kind of job those employees might best fit are interested in the goal of
- a. description.
 - b. explanation.
 - c. prediction.
 - d. control.

ANS: c

LO=1.1

4. Which early theorist developed his perspective on psychology by basing it on Darwin's "survival of the fittest" doctrine?
- a. Wilhelm Wundt
 - b. William James
 - c. John Watson
 - d. Sigmund Freud

ANS: b

LO=1.2

5. "The whole is greater than the sum of its parts" is a statement associated with the perspective of
- a. introspectionism.
 - b. functionalism.
 - c. psychoanalysis.
 - d. Gestalt psychology.

ANS: d

LO=1.3

6. _____ was (were) the focus of Watson's behaviorism.

- a. Conscious experiences
- b. Gestalt perceptions
- c. The unconscious mind
- d. Observable experiences

ANS: d

LO=1.3

7. Who is most associated with the technique of introspection?

- a. Wundt
- b. James
- c. Watson
- d. Wertheimer

ANS: a

LO=1.2

8. Who was denied a Ph.D. despite completing all the requirements for earning the degree?

- a. Mary Whiton Calkins
- b. Mary Cover Jones
- c. Margaret Washburn
- d. Eleanor Gibson

ANS: a

LO=1.2

9. Which perspective focuses on free will and self-actualization?

- a. psychoanalysis
- b. behaviorism
- c. cognitive psychology
- d. humanism

ANS: d

LO=1.4

10. Jenna suffers from a nervous tic of washing her hands repeatedly and being unable to resist washing them again and again. Which perspective would explain Jenna's hand-washing behavior as a result of repressed conflicts?

- a. psychodynamic perspective
- b. cognitive psychology
- c. behaviorism
- d. biopsychology

ANS: a

LO=1.4

11. Which perspective looks at perception, learning, and memory?

- a. psychoanalysis
- b. behaviorism

- c. cognitive psychology
- d. evolutionary perspective

ANS: c

LO=1.4

12. Which perspective emphasizes the biological bases for shared, universal mental characteristics?

- a. psychoanalysis
- b. behaviorism
- c. cognitive psychology
- d. evolutionary perspective

ANS: d

LO=1.4

13. Which of the following professionals in psychology has the broadest area of interests and functions?

- a. psychiatrist
- b. psychoanalyst
- c. psychiatric social worker
- d. psychologist

ANS: d

LO=1.5

14. A person who has suffered a major stroke and is now experiencing severe personality problems because of the damage would best be advised to see a

- a. psychiatrist.
- b. psychoanalyst.
- c. psychiatric social worker.
- d. psychologist.

ANS: a

LO=1.5

15. Which of the following specialties in psychology provides diagnosis and treatment for less serious mental problems such as adjustment disorders?

- a. developmental
- b. counseling
- c. personality
- d. experimental

ANS: b

LO=1.5

16. In the scientific method, forming an educated guess is called

- a. reporting your results.
- b. perceiving a question.
- c. drawing conclusions.
- d. forming a hypothesis.

ANS: d
LO=1.6

17. The main advantage of laboratory observation is
- a. the degree of control it allows the observer.
 - b. the degree of participation it allows the observer.
 - c. the observer effect.
 - d. the opportunity for representative sampling.

ANS: a
LO=1.7

18. Harlan wanted to write realistically about street gangs, so he pretended to be a teenager and joined a real gang. This is most similar to the method of
- a. laboratory observation.
 - b. the observer effect.
 - c. the case study.
 - d. participant observation.

ANS: d
LO=1.7

19. The main advantage of a case study is
- a. the ease of generalizing the results to others.
 - b. being able to determine cause and effect.
 - c. the amount of detail it provides about an individual.
 - d. the large number of people that can be studied at one time.

ANS: c
LO=1.8

20. The entire group that a researcher is interested in is called a
- a. sample.
 - b. population.
 - c. subject pool.
 - d. survey.

ANS: b
LO=1.8

21. Professor Jones surveyed her six classes and found that students who slept less than 5 hours the night before an exam received lower exam scores than those students who slept 7 hours or more. What kind of correlation is this relationship between hours of sleep and scores?

- a. positive
- b. negative
- c. zero
- d. causal

ANS: a
LO=1.9

22. Drinking orange juice is negatively correlated with the risk of cancer. Based on this information, which of the following statements is TRUE?

- a. The more orange juice you drink, the higher your risk of cancer.
- b. The more orange juice you drink, the lower your risk of cancer.
- c. The less orange juice you drink, the lower your risk of cancer.
- d. Drinking orange juice causes people to be cancer free.

ANS: b

LO=1.9

23. A researcher designs an experiment to test the effects of playing video games on memory. What would be the dependent variable?

- a. scores on a memory test
- b. playing video games
- c. number of hours spent playing video games
- d. the type of video game played

ANS: a

LO=1.10

24. In that same experiment, the experimental group would

- a. not play the video games.
- b. take the memory test while the control group would not.
- c. not take the memory test while the control group would.
- d. play the video games.

ANS: d

LO=1.10

25. In the stereotypes and athletes study, what was the independent variable?

- a. the test scores
- b. the room in which the test was given
- c. the control group
- d. the difference in threat level

ANS: d

LO=1.10

26. In a _____ study, only the experimenter knows who is in the control group and who is in the experimental group.

- a. placebo
- b. single-blind
- c. double-blind
- d. triple-blind

ANS: b

LO=1.11

27. Double-blind studies control for

- a. the placebo effect.

- b. the experimenter effect.
- c. the placebo effect and the experimenter effect.
- d. extrinsic motivation.

ANS: c

LO=1.11

28. Dr. Silverberg conducted a study in which she tests infants for memory ability. Before she can begin her study, she must obtain

- a. permission from the infants.
- b. permission from the parents.
- c. informed consent from the parents.
- d. confidential information from the parents.

ANS: c

LO=1.13

29. Several years ago two scientists announced that they had achieved “cold fusion” in the laboratory, but further studies failed to replicate their findings and later other scientists found that the original two scientists had used sloppy methods. This highlights which of the following critical thinking principles?

- a. Few “truths” do not need to be tested.
- b. All evidence is not equal in quality.
- c. Authority or expertise does not make the claims of the authority or expert true.
- d. Critical thinking requires an open mind.

ANS: b

LO=1.14

30. A famous newscaster advertises a new magnetic mattress for controlling pain. If Nathaniel decides to order the mattress because he believes that such a well-known personality should know if it works or not, he has made an error in which of the following?

- a. Few “truths” do not need to be tested.
- b. All evidence is not equal in quality.
- c. Authority or expertise does not make the claims of the authority or expert true.
- d. Critical thinking requires an open mind.

ANS: c

LO=1.14

31. Critical thinking means making judgments based on

- a. emotional issues.
- b. keeping a closed mind.
- c. reason and logical evaluation.
- d. authority and expertise.

ANS: c

LO=1.14